The Dissertation Committee for Katrina A. Cox Certifies that this is the approved version of the following Dissertation:

Effecting Change in the Choral Setting

Committee:

Amy L. Simmons, Supervisor

Robert A. Duke

Judith A. Jellison

Suzanne M. Pence

Diane L. Schallert

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by

Katrina A. Cox

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Dedication

To the generations of teachers who have patiently guided me,

especially to Cheryl, Keith, and Amy,

and to my students who teach me as much as I do them.

Abstract

Effecting Change in the Choral Setting

Katrina A. Cox, Ph.D.

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Supervisor: Amy L. Simmons

Abstract

The acquisition and refinement of complex procedural skills require learners to make ongoing comparisons between what they intend to do and what actually happens, and to adjust their behavior according to those prediction-outcome comparisons. This feedback process is most effective when individuals experience a variety of outcomes because grappling with success *and* failure increases their ability to predict how their actions function toward goal achievement.

The role of teachers in all domains is to effect change in the thinking and behavior of students in a way that engenders their eventual intellectual independence—students must learn how to learn as the things they grapple with become more complex. When students are still developing complex skills, the teacher's role is often to provide accurate feedback regarding performance that focuses an individual's attention towards creating advantageous prediction-outcome associations. In music teaching, conductors are working with groups of individuals in order to create cohesive ensemble outcomes—this adds

additional complexity to the learning process because effecting change in the group requires conductors to shape the thinking and behavior of each ensemble member.

The purpose of this dissertation is to explore the fundamental principles of human learning in individual and group singing contexts. Literature that describes these principles is described in Chapter 1, with particular focus on the role of feedback in the prediction-outcome comparison process. The original research presented in Chapters 2, 3, and 4, were designed as separate inquiries to be published as three independent articles. Chapter 2 surveys choral music education research and summarizes what is currently known about the process of effecting change in choral ensemble performance. Chapter 3 describes how an expert choral conductor effected change throughout a concert rehearsal cycle. Chapter 4 examines the effects of teacher's verbalizations on singers' behavior and perceptions of their experiences using an experimental design. These studies are meant to inform our understanding of how change is effected in singing performance.

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Chapter I: Introduction and Review of Literature

Theorists have long studied the way organisms learn, with particular emphasis on their ability to learn through observation (e.g., Aristotle, trans. Ross 1956/2009; Darwin, 1871; Descartes, 1637, trans. Hart; Locke, 1689/1841); they have generated ideas, theories, and laws (e.g., Aristotle's Intellectual Virtues, Darwin's Theory of Evolution, Thorndike's Law of Effect) that have informed our understanding of human learning. Learning is somewhat abstract, and for most of human history, the biological processes that underlie the acquisition of skills and knowledge were measurable only through documentation of observable behaviors. Therefore, early modern psychologists and physiologists began using experimental methods to examine and test observable aspects of learning in both humans (e.g., Ebbinghaus, 1885, trans. 1913; Thorndike, 1927; Watson & Rayner, 1920/2000) and animals (e.g., Pavlov, trans. Anrep 1927/2010; Skinner, 1948; Thorndike, 1898/1998).

Many early scholars turned to Romanes' (1910, p. 4) proposed definition and measurement of animal intelligence: an organism's ability to "... make new adjustments or to modify old ones, in accordance with the results of its own individual experience" (Domjan, 2015); most modern definitions of learning in psychology continue to link the acquisition and refinement of knowledge, skills, and behavior with experience (e.g., Domjan, 2015, p. 14; Ormrod, 2014, p. 4; Pinel, 2006, p. 261). Therefore, experimental research meant to investigate the learning process was designed to examine how the manipulation of specific, isolated factors within a learning experience affected observable behavioral outcomes[1].

Many early experiments that focused on the relationships between external variables and behavioral outcomes generated the empirical evidence to support behaviorist principles of learning (Bruner, 2004; Domjan, 2015; Ormrod, 2014). Pavlov used animals to investigate reflexive

[1] It is important to note that methods *can* be designed to garner objective evidence in support of or opposition to targeted theories (Bruner, 2004).

behaviors that would lead to the rules of Classical Conditioning (1927), and Thorndike developed the Law of Effect (1905) from his observations of hungry animals escaping entrapment (1898/1998). Using comparative psychology, Thorndike hypothesized that way in which we act is rooted in what we have learned from prior experience: animals use behaviors that have, in the past, resulted in satisfying outcomes while avoiding behaviors that resulted in discomfort.

Behaviorists, such as Skinner, Watson, and Reyner (e.g., Skinner, 1938; Watson & Reyner, 1920) continued to investigate learning, basing their work on the theories of association originally studied by the likes of Aristotle and Locke, as well as the objective examinations of Thorndike. However, these theories were often developed with the belief that all animals, including humans, are born as blank slates—other than certain biological instincts, animal behavior was considered to be the result of past experiences and interactions with external environmental factors (Domjan, 2015; Ormrod, 2014). The way in which these investigations and theories were designed rarely accounted for variations among individuals.

Psychologists who became dissatisfied with behaviorists' associative theories began to examine alternative models of learning, as well as new modes of inquiry that encompassed the biological processes of perception and cognition. Gestalt theorists studied animal (e.g., Köhler, 1925/1931) and human (e.g., Koffka, 1922) perception by observing how subjects interacted with different stimuli (e.g., how a set of pitches might be perceived as a melody even when transposed; Wertheimer, 1924/1984). Others, such as Piaget and Vygotsky, began to study combinations of factors that contribute to human learning and development, in what is often referred to as early cognitive psychology (Ormrod, 2014).

Cognitive psychology, which focuses on the mental processes involved in learning (e.g., perception, attention, memory), rose to prominence in the mid-1900s, and has contributed to much of our current understanding of learning (Bruner, 2004; Ormrod, 2014). Vygotsky's (e.g., 1928/2012; 1977) early study of how human thinking and development is strongly impacted by

biology and context (e.g., society, culture, environment) helped with the development of contextually-driven theories, such as Sociocultural Theory (Ormrod, 2014). The work of Chomsky, a psycholinguist, (e.g., 1975, 2011) highlighted the unique human ability for language—to communicate and interpret the spoken word, as well as to think and gain knowledge, which in turn spurred the study of learning through language (Bruner, 1982, 2004). Cognitive theorists have also studied how the observation of others can affect human behavior, which has led to the development of social learning theories, such as Social Cognitive Theory (e.g., Bandura, 1977).

While no single theory can explain precisely how human learning occurs, taken together, these ideas inform our understanding that a single learning experience can be influenced by myriad confounding factors (e.g., cognitive ability, environment). For this reason, developing a cohesive characterization of the learning process that accurately captures all of its components presents an ongoing challenge (Berliner, 1976; Bruner, 2004; Piaget, 1964; Thorndike, 1898/1998; Vygotsky, trans. Favorov 1928/2012). Certainly, the groundbreaking work mentioned here has provided scholars and practitioners with a foundational picture of how human beings acquire knowledge and skill. Those who choose to enter the profession of teaching must understand basic principles of human learning in order to foster the intellectual and behavioral development of the students in their charge.

PRINCIPLES OF HUMAN LEARNING

As do other animals, human beings consistently apply thoughts and actions that have become associated with the achievement of a goal (Platz, Kopiez, Lehmann, & Wolf, 2014; Thorndike, 1905, 1927), and those reinforced associations serve to automatize thought and behavior in a way that minimizes cognitive effort (Bereiter & Scardamalia, 1993; O'Sullivan, Burdet, & Diedrichsen, 2009). This is an adaptive feature of learning, as cognitive attention can then be diverted to higher-order processes, such as refining behavior or responding to changes in

goals or circumstances that require more deliberate prediction-outcome comparisons—as in adjusting our step to navigate an unexpected obstacle in our path (Sadeghi, Ingram, & Wolpert, 2018; Wolpert & Ghahramani, 2000). Adaptation demands flexibility in thought and action that can only be developed as behavior becomes more refined through the process of increasingly specific prediction-outcome comparisons. In the case of relatively simple behaviors (e.g., walking), refinement often occurs below the level of conscious awareness. The refinement of more complex behaviors (e.g., music performance) typically requires more purposeful goal-directed thinking and behavior (e.g., Baker & Young, 2014; Ericsson, 2005).

Whether the goal is to acquire or refine knowledge and skill, prediction-outcome comparisons are informed by both learners' perceptions (e.g., Bandura, 1989; Wolpe, Wolpert, & Rowe, 2014) and external sources of goal-related information, such as other people (Finkelstein & Fishback, 2012) or objects (Paney & Kay, 2015) in the immediate environment. Regardless of its source, information learners gain information regarding their performance has the potential to change their thinking or behavior if they perceive it and deem it relevant to goal achievement (Bandura, 2012; Vygotsky, trans. Sharp 2004). Although self-perceptions are nearly always involved in one's learning process, information gained from external sources is not always required; however, when those with more goal-related experience skillfully interact with learners, they can create the potential to enhance learning (Vygotsky, 1978). The information gained from external sources (e.g., qualitative teacher verbalizations that refer to student work or a bicycle rider's proprioceptive sense of balance based on seat placement) is often referred to as feedback, which from a broad perspective, is any stimulus that occurs concurrent with or subsequent to human behavior (Duke, 2015).

In the classroom, teachers use feedback as a tool to guide students toward setting appropriate goals and predicting outcomes with more accuracy, thereby allowing them to acquire and refine skills more efficiently (e.g., Madsen & Madsen, 1998). A teacher's expert guidance is

often necessary when students are tasked with mastering complex skills and concepts (e.g., singing beautifully) (Vygotsky, 1978). While students are still acquiring requisite knowledge and skill, they are often unable to imagine an ideal outcome independently from the outset—without a clear picture of a behavioral goal, prediction-outcome comparisons are not effective (Wood, Bruner, & Ross, 1976). In this case, teachers are able to offer feedback that supplements the gaps in students' current level of understanding and ability.

The common thread woven into the three studies presented in this dissertation is the description of the role of verbal feedback in improving singing in group and individual instructional contexts. Therefore, the remainder of this review of published research (Chapter 1) will focus on a discussion of feedback first from a broad perspective, then by making distinctions among the many forms of feedback—characterizing of our current understanding of its role in human learning in general. The review concludes with a summary of feedback research conducted in music learning contexts.

FEEDBACK IN HUMAN LEARNING

Feedback is a ubiquitous part of everyday life. Our perception of feedback is relatively continuous, coming from a variety of sources and taking on many forms. For instance, when a cold front moves through and the temperature drops, a woman's brain perceives the environmental feedback and sends a shiver through her body. She processes the shiver, and silently criticizes herself for leaving her coat at home while hearing a friend comment on how impressed he is that she chose to brave the cold. She has received feedback simultaneously from four different sources (environment, body, self, and peer) in a variety of modes (physiological, internal, external).

In order for feedback to influence a person's behavior, it must first be perceived (Atkinson & Shiffrin, 2016; Hamilton, 2017; Posner & Rothbart, 2007). Our choice to actively attend to the feedback we perceive is what initiates most of the behavioral changes we make—a singer notices that he is running out of air before he will be able to finish a long phrase, and decides to catch a

quick breath in the most appropriate place to avoid a catastrophic performance problem. Individuals make subconscious and conscious decisions about how to respond to feedback in the moment: subconscious responses can be both physically or mentally reflexive in nature (e.g., Janssen & Prins, 2007; Mehler, Marc, Reichenbach, Klein, & Diedrichsen, 2017), whereas conscious responses are often learned and can be influenced by the current physical, mental, and emotional state of the individual (e.g., Finkelstein & Fishback, 2012; Pekrun, Cusack, Murayam, Elliot, & Thomas, 2014).

Feedback is essential in creating and refining learned associations between actions and outcomes (Hattie & Timperley, 2007; Keith & Frese, 2008). Prior observations and experiences provide feedback that informs a person's prediction of likely outcomes when similar behaviors are encountered (e.g., Darrow & Marsh, 2006). This cultivated pairing of predictions and outcomes is adaptive; for instance, a person learns to avoid foods that cause indigestion, and a child learns to wait at an intersection after repeated associations between seeing the bright stop symbol and hearing her parent describe the danger while holding her back. Each time an individual responds to familiar circumstances, his perception of the resulting outcome either reinforces the adaptive association or creates dissonance. When learners perceive dissonance from prediction-outcome feedback, they are primed for learning and behavior change (Frese & Keith, 2015; Keith & Frese, 2008; Herzfeld & Shadmehr, 2014; Seidler, Kwak, Fling, & Bernard, 2013); without that dissonance, behavior will likely remain the same even if it is not in its ideal form.

In many situations, we are able to make intelligent predictions and interpret outcome feedback without assistance, and in those cases, we are independently able to change maladaptive behaviors (e.g., Arnold, 1995; Valle, Andrade, Palma, & Hefferen, 2016). Other times, we benefit from receiving feedback from someone with more skill or experience who is able to help us learn to interpret outcome feedback and plan to make more accurate predictions in the future (Vygotsky, 1978). When paired closely with behavior, verbal feedback delivered by a skilled person can speed

the learning process and prime a learner's motivation to persist in accomplishing challenging tasks (Clark, 2002; Hattie & Timperley, 2007). For example, a parent is able to quickly show her child which step he is skipping that is impeding his ability to tie his shoelaces well. The child would likely figure this out on his own eventually, but the parent can guide him toward goal achievement efficiently. Understanding the role of feedback in human learning is critical for educators, as the skillful use of feedback as part of an intelligent sequence of instruction can change students' thinking and behavior (Clark, 2012; Hattie & Timperley, 2007).

VERBAL FEEDBACK TYPES

In the educational setting, verbal feedback is intended to motivate students and prime behavior change (Duke, 2015). Teachers deliver feedback with the intention of creating and reinforcing adaptive social and academic habits and performance behaviors. When used well, feedback reduces discrepancies between students' current level of performance and the performance goals (Carver & Scheier, 1991), and provides information about how students can advance toward achieving those goals. Various labels have been assigned to different kinds of feedback; labels often describe its intended function and are often created dichotomously (e.g., specific and general).

Our literature most frequently describes and explores the effects of positive and negative feedback. Positive feedback can be described as an outcome or response that is perceived as being congruent with a person's present state of existence or understanding. For instance, a singer who takes a breath she deems adequate to perform a long phrase experiences positive feedback when she completes the phrase before requiring another breath. Her prediction was congruent with the outcome, and she will likely take a similar breath when attempting to sing that phrase again. However, if the singer takes a breath she deems adequate, but she experiences physiological distress that prompts her to take a catch-breath, she perceives that feedback as negative. In this case, her physiological response is perceived as negative feedback because it was inconsistent with

her prediction. This kind of dissonance draws learners' attention toward making a change in behavior that is more likely to increase predict-outcome congruence.

It is important to note that positive and negative feedback statements are not inherently paired with emotional intent, and it is often the case that teachers do not deliberately assign emotional valence to the information they provide as feedback. In fact, many researchers, educators, and administrators have attempted to separate inappropriate pairings between feedback and emotion by creating new labels (e.g., critical feedback; affirmative and nonaffirmative feedback). There are, however, some types of feedback that *are* intended to elicit emotion. The most common example of emotional feedback used in the classroom is praise. Brophy (1981) writes that educators may offer praise reactively and spontaneously to serve several functions: to provide balance with other types of feedback learners receive during instruction, to guide improvement in place of criticism, to build rapport, to relieve increasing levels of tension observed in a struggling student, to build student confidence, or to serve as a transitional ritual, attentional redirection, or consolation prize. He also notes that students can become habituated to praise when it is noncontingent, used excessively, or delivered without intent, all of which can nullify its effectiveness.

Another feedback dichotomy common in education research is specific versus nonspecific. While nonspecific feedback provides a general evaluation or assessment of overall performance (e.g., "That sounded lovely."), specific feedback provides learners with information regarding what was good or bad about the performance (e.g., "Sopranos, the E in the final chord of measure 8 was perfectly in tune that time."). For this reason, some researchers prefer to use the dichotomous terms attributional and nonattributional or structured and nonstructured rather than specific and nonspecific—the more frequently used dichotomy in human learning research.

Feedback that compares one student to another or to a predetermined standard can be used as an effective tool in the classroom. This kind of information, called normative feedback, serves

to compare an individual or group's performance to that of a select population (Koestner, Zuckerman, & Koestner, 1987; Nicholls, 1984); it provides learners with perspective regarding their current level of skill. This form of feedback is common in our educational system (e.g., results of standardized testing, rankings of ensembles in music contests). Research indicates that students tend to value receiving normative feedback less than other forms of feedback (e.g., Stamer, 2009), preferring instead to receive both individualized and group feedback that compares their current performance to their own prior demonstrations of knowledge and skill.

FEEDBACK IN PSYCHOLOGY

Ongoing interactions among cognitive, behavioral, and environmental influences contribute feedback that factors into one's perception of self (Bandura & Jourden, 1991). Learners' sense of motivation as well as their self-efficacy and self-concept (described in more detail below) mediate the process of learning, and are therefore important constructs for teachers to consider (Nicholls, 1984). We now understand that these components of an individual's state of being function as a lens through which feedback is perceived.

Learners' motivation (i.e., their desire to engage in goal-oriented behavior) can influence how they respond to feedback in their environment, particularly with regard to whether their motivation in a given situation tends to be more intrinsic or extrinsic in nature. Intrinsic motivation is that which comes from within a learner. It is characterized by an inherent drive to engage in goal-directed behavior for the sheer reward of participating (Deci, 1975) and is often associated with the presence of self-regulated learning behaviors and a desire to master skills. People who exhibit high levels of intrinsic motivation purposefully engage in challenging tasks (Pittman, Emery, & Boggiano, 1982). In contrast, extrinsic motivation is described as that which comes from sources outside the self, as in receiving external rewards or achieving a goal. Individuals motivated by extrinsic factors seek to complete tasks rather than master them, receive approval from others, and compete with peers.

Teachers can attempt to manipulate students' motivation through their use of feedback. When positive feedback reinforces effort as much as success, teachers foster behavioral choices motivated by intrinsic factors (e.g., skill mastery). If teachers offer students praise only upon successful task completion—choosing not to reinforce the process that generated that product—their feedback is likely to teach students to value external sources of gratification (Koestner et al., 1987; Nicholls, 1984). In fact, positive verbal feedback has been shown to increase participants' level of intrinsic motivation for tasks in which they have high interest more than when extrinsic rewards (e.g., money) are used as a source of motivation (Cameron, Banko, & Pierce, 2001; Cameron & Pierce, 1994; Deci, 1971).

Attributes, such as age (Ryan & Deci, 2000; Nicholls, 1984) and gender (Koestner et al., 1987), can mediate the influence of feedback on motivation. Although babies are born with innate curiosity and strong intrinsic drive, societal norms and conventions diminish fearless inquisitiveness and increase introspection and reservation as children grow and mature (Ryan & Deci, 2000). This process of enculturation can influence how feedback is perceived. In one study, participants who identified as women tended to show higher levels of intrinsic motivation to continue a task in the absence of positive feedback early on, whereas participants who identified as men exhibited higher levels of intrinsic motivation after receiving feedback that praised either their ability or effort (Koestner et al., 1987).

Perceptions of feedback are also tied to one's sense of self-efficacy (i.e., an individual's sense of capability in a given situation), which is typically determined by a constellation of variables that contribute to whether or not a person feels capable of achieving success under specific circumstances (Wittmann, Kolling, Faber, Scholl, Nelissen, & Rushworth, 2016). Self-efficacy directly influences the way learners navigate academic and social behaviors (Barbaranelli, Paciello, Biagioli, Fida, & Tramontano, 2018), including behaviors related to goal-setting, problem-solving, and self-evaluating (Bandura & Jourden, 1991); in other words, a person's sense

of self-efficacy is likely to influence their perception of feedback at all stages of the learning process. Individuals with higher levels of self-efficacy tend to believe in their ability to acquire skills, benefit from making mistakes, set more challenging goals (Bandura & Jourden, 1991), and focus on constructive self-assessment that leads to performance improvement (Bandura, 1989; Nicholls, 1984) and skill mastery (Coutinho & Neuman, 2008; Zelenack, 2015). Students with high levels of self-efficacy benefit from receiving both positive and negative feedback that is specific and helps them move toward goal achievement, whereas students with low levels may initially require more positive feedback in order to build their sense of self-efficacy.

Self-concept is defined as an individual's general perceptions of his attributes, abilities, and potential; it is formed by life experiences and is modified by the continuous integration of feedback received every day (Fishbach, Eyal, & Finkelstein, 2010; Ryan & Deci, 2000). Feedback functions differently for individuals based on their self-concept. Those who have experienced positive outcomes tend to believe they are capable of performing similar tasks and identify themselves as proficient or able, making them more likely to seek out negative feedback in order to continue honing skills and knowledge (Finkelstein & Fishback, 2012). People who have a more negative self-concept have likely experienced more failure than success, and for that reason, may benefit from receiving praise and positive feedback more than criticism (Brophy, 1981; Finkelstein & Fishbach, 2012).

Relationships between feedback and the psychological constructs of motivation, self-efficacy, and self-concept were explored in an important study by Bandura & Jourden (1991). Individuals who received deliberately-manipulated normative feedback regarding their managerial decision-making skills demonstrated interesting changes in behavior and shifts in perception. Those who were told they outperformed their peers as the result of hard work displayed increased levels of self-efficacy and intrinsic motivation to problem solve, they challenged subpar standards, exceeded their previous performance, and exhibited more efficient use of analytic strategies.

Participants who were negatively compared to their peers reported declining levels of self-efficacy, self-concept, and overall performance, as well as no change in their use of analytic strategies. Interestingly, participants who were told that they had easily outperformed their peers went on to set less-challenging goals in future work while maintaining high levels of self-efficacy despite performance declines, in contrast to participants who were required to exert more effort in order to receive positive normative feedback. This study highlights the importance of human psyche in the way people receive feedback and chose to engage in learning processes.

FEEDBACK IN EDUCATION

Initiating change in the way students think and behave can be challenging, particularly in the classroom setting where student needs vary, and innumerable environmental, social, physiological, cognitive, and behavioral variables serve as sources of feedback that capture learners' attention. Although these variables cannot be entirely controlled for in research protocols that explore feedback in ecologically valid contexts, our literature offers insight into how these sources of feedback may function in classroom environments. As one might expect, researchers have found that feedback influences student performance and achievement as well as social behaviors (Benson & Fung 2005, 2004; Butler & Roediger, 2008; Napoles, 2006; Price, 1983), and that teachers can use feedback to affect the way students approach and engage in classroom activities (Creech, 2012; Price, 1983; Viciana, Cervelló, & Ramírez-Lechuga, 2007; Yarbrough & Price, 1981).

There are a few variables regarding teachers' delivery of feedback that contribute to its effectiveness. While learners may benefit from delayed feedback compared with receiving none, feedback is most effective in effecting behavior change when it is received immediately after task execution (Butler & Roediger, 2008; Duke & Madsen, 1991) and when it is specific in nature (for a meta-analysis, see Kluger & DeNisi, 1996). When teachers insert feedback among the steps of an intelligently structured sequence of activities that focus student attention on targeted goals, they

are most likely to facilitate progress (Cole, Riccio, & Balcetis, 2014). Also, when teachers' verbalizations are supportive of curiosity and growth (Creech, 2012; Ryan & Deci 2000; Viciana et al., 2007), students tend to demonstrate higher levels of intrinsic motivation.

Teachers are not the only source of feedback in a classroom setting. Although individuals tend to remember peer feedback more readily than the feedback they receive from an instructor (Napoles, 2008), praise from an instructor is more effective than it is when delivered by peers (Catano, 1976; Stock 1978). Participants who received instructor-delivered feedback completed performance trials more accurately (Catano, 1975; Stock, 1978) and quickly (Stock, 1978) than did those who received feedback from peers. Most often, when individuals are intrinsically motivated to improve or change behaviors, they select trusted colleagues, friends, and mentors to provide them with information about their performance, and will persist longer when they receive abundant reinforcement from their peers (Bridwell-Mitchell, 2015).

General group dynamics influence the way incoming feedback is perceived. Students are more likely to be critical of their own performance when they are in a group, as they are programmed to compare their performance to those within their environment (Festinger, 1954; Wittmann et al., 2016). Over time, those comparisons can contribute to their sense of self-efficacy for specific instructional goals as well as their more general self-concept. Even when cooperative group dynamics are fostered, these psychological constructs will influence perceptions of feedback; for example, singers with lower levels of self-efficacy tend to interpret their choir directors' feedback as serving an instructional purpose, whereas their peers with higher self-efficacy levels believe feedback is earned or deserved (Taylor, 1997). Furthermore, the social dynamics of a group can also change learners' motivation by focusing their attention on group accomplishment rather than on individual performance (Belli, 2015), which may in turn influence the way learners respond to feedback. For instance, males participating in a game task performed

better when they received feedback in a group setting than when they were alone (Silva, Shulman, Chein, & Steinberg, 2016).

LEARNERS' PERCEPTIONS OF AND RESPONSES TO FEEDBACK

As learners mature and gain proficiency in goal-directed behavior, they often want to receive both positive and negative feedback (Dunn, 1997; Finkelstein & Fishback, 2012), particularly when they become more able to recognize that receiving both positive and negative specific feedback can enhance learning. In an interesting study, Finkelstein & Fishbach (2012) described this relationship between maturity and feedback perception, noting that novices reported a preference for receiving equal amounts of specific positive and negative feedback, but valued positive feedback more than negative, whereas more advanced students preferred that instructors deliver specific negative feedback. As novices gained experience, their preferences and behaviors shifted from seeking specific positive feedback to specific negative feedback. These results suggest that individuals initially need positive feedback to create a strong sense of self-efficacy, but once that is established, they are more intrinsically motivated to improve and will therefore seek specific negative feedback to achieve their goals. It is important to note that these learners sought out specific feedback; there are numerous studies in other domains of learning that confirm the value students place on receiving specific feedback (Creech, 2012; Hattie & Timperley, 2007; Schmidt, 1995).

Even when teachers deliver specific feedback skillfully, students' perceptions of feedback do not always align with what teachers intended, particularly in the group context, which is further complicated by the fact that learners' responses to feedback are often emotional in nature. As an example, some singers perceive a choral conductor's criticism as devastating to self-confidence and self-efficacy, whereas their perceptions of positively-delivered feedback might be more neutral (Bonshor, 2017), regardless of the conductor's intent. As teacher-student familiarity

increases, so does the accuracy with which students interpret feedback (Taylor, 1997), but even then, students' self-efficacy is salient in their feedback perceptions.

Results from a recent survey conducted by Fong, Warner, Williams, Schallert, Chen, Williamson, and Lin (2016) revealed that undergraduates' perceptions of feedback and constructive criticism are often tied to emotion. A majority of participants conveyed an understanding that constructive criticism is meant to improve performance. Many responses included language charged with emotional valence when they commented on instructor behavior (e.g., harsh, kind) and student ability (e.g., strength, weakness), and there was a tendency for students to associate their experiences receiving positive feedback with pleasant emotions, negative feedback with unpleasant emotions, and constructive criticism with optimism. Furthermore, students who were considered "feedback seekers" expressed more positive feelings about receiving negative feedback and constructive criticism than did students who tended to avoid feedback, and participants who identified as male tended to have more polarized responses to positive and negative feedback than those who identified as female.

FEEDBACK IN THE CHORAL SETTING

Many studies show that choral instructors deliver both positive and negative feedback to effect change in ensemble performance (Arthur, 2002; Cox, 1989; Derby, 2001; Murray, 1972; Watkins, 1999; Yarbrough & Price, 1989), but these authors emphasize that this feedback is often general in nature. These studies reveal that choir directors and voice instructors often avoid offering specific feedback to individuals, which is likely attributable to the long-held notion that singers do not respond well to receiving critical feedback, particularly in the group setting. Currently, there is insufficient empirical evidence to make such a claim, as the few reports that are published are inconclusive—some studies support the notion that ensemble singers may be particularly sensitive to receiving specific feedback (e.g., Bonshor, 2017), while others report that

a lack of individualized feedback can fuel a singer's insecurities (e.g., Bonshor, 2017; Sweet, 2018).

The extent to which people experience joy in singing is closely tied to their self-concept and self-efficacy, which were formed in part by their prior singing experiences and from external feedback given by music teachers and family members (Abril, 2007; Bonshor, 2017; Chong, 2010; Mizener, 1993). Interviews with self-identified non-singers provide some support to the idea that negative feedback has the potential to cause immediate, long lasting, and sometimes traumatic aversions to singing (Swain & Bodkin-Allen, 2014; Whidden, 2009). Self-identified non-singers avoid singing in music classes and in public (Abril, 2007; Swain & Bodkin-Allen, 2014; Whidden, 2009), thereby removing potential opportunities to receive expert feedback that may improve their singing skills. This self-concept, which has been shown to manifest during the elementary years, can significantly impact a person's choice to continue in music study (Abril, 2007; Bowles, Duke, & Jellison, 1999; Demorest, Kelley, & Pfordresher, 2017; Mizener, 1993). This is extremely unfortunate, as many individuals self-identify as non-singers despite the reality that their singing skills are not significantly worse than the rest of the general population (Demorest et al., 2017; Mizener, 1993).

Perhaps this incorrect self-concept and negative attitude toward singing is the result of ineffective teaching. Teaching is thought to be most effective when learners are given specific feedback part of a well-sequenced series of attainable goals that allow for success (Duke, 2015). Yet descriptions of choral teachers' rehearsal behavior include high rates of nonspecific feedback (Yarbrough & Price, 1989) and avoiding both the direct correction of error (e.g., Morgan, 1992; Patterson, 2009) and asking individuals to sing alone during ensemble rehearsals (e.g., Derby, 2001). These data suggest that instead of offering singers specific individualized feedback that might bring about performance improvements quickly and efficiently, conductors avoid those kinds of verbalizations out of the fear of alienating or offending students.

This fear is not as prominent in the instrumental music setting. For instance, a study conducted by Cavitt (2003) found that effective band directors spend large portions of rehearsals correcting errors, which include frequent isolation and improvement of individuals' performance skills. She also emphasized the specificity with which teachers addressed errors—placing attention on information about performance targets—and the dispassionate way in which feedback was delivered. Published descriptions of choral teaching practices look quite different from this.

PURPOSE AND RESEARCH QUESTIONS

The original studies presented in this document are meant to be published as independent articles co-authored with Dr. Amy Simmons, the supervising committee member for this work. The overarching purpose of this dissertation was to explore and describe basic principles of human learning in the context of choral music education. Each study contributes unique information about choral instruction that creates a picture of how skillful teachers effect positive change in group and individual performance, with specific emphasis on the role of feedback in the teaching and learning process. Research questions were:

1. How does published literature in choral music education inform our current understanding of the thought and practice that guides the profession?
2. How does an expert choral conductor effect change in an ensemble's performance during an entire rehearsal cycle?
3. How does the use of specific negative feedback in individual vocal lessons affect singers' performance and perceptions?

Chapter II: The State of Choral Music Education Research

Systematic reviews serve as both a resource for scholars and a reflection on what has been discovered and described in a specific area. Authors who engage in this work often highlight consistent and discrepant findings, identify trends, and comment on underrepresented or missing areas within the body of research. The choral area has seen three such reviews—conducted by Grant and Norris (1998), Hylton (1983), and Gonzo (1973)—all of which were published in the *Bulletin of the Council for Research in Music Education*. The trends, evolving interests, and foundational topics these authors identified were quite similar. Collectively, their observations regarding what was lacking across 50 years of literature and their call for change in the choral research enterprise remained much the same.

Gonzo's 1973 survey (1945-1972) was the first choral research literature review published in a peer-reviewed journal. He organized articles into four broad categories under three headings: history, physiological aspects of choral singing, and the rehearsal and the conductor. A majority of his 44 citations were doctoral dissertations; only three were articles published in peer-reviewed journals, and no author was cited more than once. Gonzo stated that research in choral music was descriptive in nature, fragmented, narrow in scope, and detached from practitioners in the field. His recommendations were for scholars to develop and continue a line of research, increase the use of experimental design, and focus on rehearsal and classroom practices aimed at improving students' musical development.

Hylton's 1983 review (1972-1981) organized choral studies using five categories: rehearsal techniques and choral methods, physiology and psychoacoustics, teacher preparation, historical studies, and miscellaneous. Hylton cited 77 articles, only 13 of which came

from peer-reviewed journals. Among these refereed publications were Gonzo's 1973 review and 12 articles appearing in the *Journal of Research in Music Education (JRME)*. Although Hylton described modest increases in the number of contributing authors, frequency of published peer-reviewed articles, and variety of topics addressed, nearly all of his conclusions and concerns echoed those of Gonzo (1973).

Grant and Norris's 1998 review (1982-1995) further expanded the frameworks developed by Gonzo (1973) and Hylton (1983); they classified 153 citations, 48 of which were published in peer-reviewed journals, into six broad categories that included 24 subcategories. The authors observed an increase in the variety of research topics and study designs, acknowledged a less-fragmented body of research, and noted multiple authors—specifically Cornelia Yarbrough and Harry Price—who continued lines of inquiry. Grant and Norris' prominent concerns were similar to those of Gonzo and Hylton: choral research remained narrow in scope; lines of inquiry were often discontinued after dissertations; and a disconnect remained between researchers' scholarship and topics relevant to practitioners.

The purpose of this systematic review of choral music education literature is to assess the state of research in our field, determine whether the consistent calls for change made in all prior reviews have been addressed by scholars, and describe how articles published subsequent to Grant and Norris's (1998) review have contributed to current thought and practice. We reviewed choral research published in the past 24 years (January 1995 - December 2018) using a modified version of the most recent category framework established by Grant and Norris.

METHOD

Included articles were published in peer-reviewed journals, were examined topics related to choral ensembles (i.e., group instruction) and choral teacher education using either descriptive or experimental design, and were set in secondary schools or institutions of higher education exclusively within the United States. In order to focus specifically on choral studies, we chose to exclude studies of applied vocal instruction, those that gathered data from individual singers separate from the choral ensemble context, dissertations, theses, books, conference presentations, historical reports, and biographical studies.

PROCEDURE

Our initial collection of articles began with a hand search of five prominent national and international peer-reviewed journals (i.e., *International Journal of Research in Choral Singing, Journal of Research in Music Education (JRME), Bulletin of the Council for Research in Music Education (CRME), Journal of Music Teacher Education (JMTE), Update: Applications of Research in Music Education*), a search of applicable subject terms (i.e., *choir director, choral educator, singing,* and *choir*) in the Music Education Search System database, and a review of references provided in the articles we had identified thus far. It soon became apparent that our initial decision to conduct hand-searches of five prominent journals was simply not sufficient; based on the citations we had collected, we expanded our method to include hand-searches of four additional journals (i.e., the *International Journal of Music Education, Contributions to Music Education,* the *Southeastern Journal of Music Education,* and the *Journal of Voice*).

We chose to begin coding using Grant and Norris' 1998 category-subcategory framework; after classifying articles from *JRME* and *CRME*, we reached a consensus regarding modifications to the framework, upon which all further articles were classified. One category (i.e., singing and vocal pedagogy) and one subcategory (i.e., history and biography) were removed from the original framework due to differences in inclusion criteria, and new categories and subcategories were established to describe research in new topic areas. In addition, many articles featured multiple purposes suggesting the use of cross-listing (see Appendix A). Both authors coded each article independently according to its most prominent purpose (i.e., primary) followed by additional (i.e., secondary) purposes, then met to confirm codes and resolve any disagreements through a second reading and conversation.

Summaries of Results by Category

Our results indicate that 193 articles meeting our inclusion criteria have been published in 11 peer-reviewed journals over past 24 years. Choral music education research has seen a substantial increase in the number of articles published per year and the number of authors publishing multiple articles (i.e., 25 authors cited twice, and 21 cited three or more times). Many authors are collaborating to follow new lines of inquiry and to expand specific areas of research. One category and six subcategories were created based on prominent and observable emerging research trends, which accounts for 53.36% of the articles coded (article totals and framework changes are indicated in Table 2.1). Nearly 60% of the articles explored and described multiple factors that contribute information to two or more subcategories. For the sake of brevity and clarity, the following results describe each article according to its most prominent primary purpose; secondary purposes can be found in Appendix B.

Table 2.1: The Framework of Categories and Subcategories

The number of articles pertaining to each topic are indicated in parentheses. Cross-listings can be found in Appendix A.

Category	*Subcategory*
1. Curriculum & Materials (26)	a) Comprehensive Curricula & Evaluation (4) b) Choral Literature (5) c) Sight-Singing (12) d) Instructional Materials (0) e) Descriptive Studies (5)
2. Teacher/Conductor Behaviors (18)	a) Verbal Behaviors (3) b) Time Use (6) c) Teaching Style & Class Environment (1) d) Teacher Effects on Student Behavior (7) e) Miscellaneous Descriptive Studies (1)
3. Teaching Methods & Rehearsal Techniques (15)	a) Rehearsal Organization (1) b) Effects of Specific Techniques (8) c) Singing Formations (5) d) Movement (1)
4. Teacher Education (49)	a) Comprehensive Studies (6) b) Choral Teaching Techniques (3) c) Error Detection (4) d) General Teaching Techniques (9) e) Perception & Self-Reflection* (23) f) Preservice Social/Identity* (4)
5. Student Characteristics* (64)	a) Social & Personal Characteristics* (10) b) Perceptions & Ratings* (42) c) Behavior* (3) d) Enrollment (9)
6. Miscellaneous (21)	a) Vocal Health* (12) b) Contests & Festivals (3) c) Other Studies (6)

Note. *New categories and subcategories.

Category 1: Curriculum & Materials (26 articles)

Comprehensive Curricula & Evaluation (4 articles). The small number of articles in this category suggests that the practice of choral teaching and assessment in the US seems individualized in nature, even within a single state (Hamann, 2007; Kotora, 2005); much of curriculum and assessment is based on teacher preference. On the local level, developing and implementing common curricular goals and student assessment tools can be restrictive, but it also fosters the development of cohesive programs and increased metacognition in both teachers and students (Parkes, Rohwer, & Davison, 2015; Sindberg, 2016).

Choral Literature (5 articles). When selecting literature for ensembles, choir directors consider a variety of factors that include aesthetic value (Reames, 2001); characteristics of the school, program, and student population (Forbes, 2001); and legally justified performance traditions and historical context (Cranmore & Fossey, 2014). Researchers have recently conducted choral repertoire analyses that report commonly published jazz octavo styles (Baker (2011) and gender demographics of composers and arrangers featured on Texas' Prescribed Music List (Baker, 2018).

Sight-singing (12 articles). According to survey results from multiple states, secondary choir directors (Demorest, 2004; Floyd & Bradley 2006; Kuehne 2007) and students (McClung, 2001) reported using different sight-singing systems (e.g., movable solfege or pitch numbers). Teachers' pedagogical approaches, choice of materials, and personal beliefs regarding sight-singing are varied; in general, educators tend to employ methods with which they are most familiar (Nichols, 2012).

Multiple authors have identified common student characteristics that are related to high schoolers' ability to sight-sing accurately (e.g., age, piano experience, years of choir participation) (Demorest & May, 1995; Henry, 2001; McClung, 2008). Academic factors that can contribute to student sight-reading success include the consistency of instructional methods between primary and secondary schools (Demorest & May, 1995; Henry, 2001), the complexity of sight-singing tasks (Demorest & May, 1995), and the use of Curwen hand signs (McClung, 2008). Academic activities that can improve students' sight-reading skills include using analytical strategies (e.g., identifying common harmonic functions of scale degrees) (Henry, 2004), practicing behaviors exhibited by strong sight-reading performers (Henry, 2008), and using frequent individualized testing (Demorest, 1998; Floyd & Bradley, 2006). It should be noted that such assessment opportunities are not often included in classroom activities (Demorest, 2004). Furthermore, while many choir directors report a desire for students to receive adjudicator feedback on sight-singing performance (Nichols, 2012) the inclusion and standardization of full ensemble sight-singing assessment at state-level contests is not consistent across the US (Norris, 2004).

Instructional Materials (0 articles). None of the articles we identified focused on instructional materials as a primary purpose; however, five articles examine instructional materials as a secondary purpose (see cross listings in Appendix B).

Descriptive Studies (5 articles). Three articles used surveys to examine how curriculum, instruction, enrollment (Schmidt, Baker, Hayes, & Kwan, 2006), and the use of composition (Strand, 2006b) and multicultural music (Leggette, 2003) varies within single states. A national survey described music teachers' perceptions of preparation and support for inclusion practices

(VanWeelden & Whipple, 2014). Wagner (1995) examined the use of Karaoke with secondary choral ensembles, noting its strengths and limitations as a pedagogical tool.

Category 2: Teacher/Conductor Behavior (18 articles)

Verbal Behavior (3 articles). Articles examining choir directors' behaviors found differing amounts of talk time and student attentiveness by level (i.e., middle school, high school, college) (Napoles, 2006), but similar frequencies of teacher approval and disapproval statements (Watkins, 1999) and durations of time delivering directives (Napoles, 2006). Students preferred rehearsals designed to limit teacher talk, but the constraint reduced teachers' ability to deliver detailed instruction (Nápoles, 2017).

Time Use (6 articles). Investigators have analyzed the time choral teachers spend on nonperformance activities (Brendell, 1996; Garrett, 2013; Watkins, 1996; Yarbrough, 2002), performance activities (Garrett, 2013; Yarbrough, 2002; Yarbrough, Dunn, & Baird, 1996), sight-reading preparation (Yarbrough, Orman, & Neill, 2007), and the practice of developing critical thinking skills (Garrett, 2013; Watkins, 1996).

Teaching Style and Class Environment (1 article). Parker (2016) described a variety of approaches that four directors took to cultivate community within their large, successful programs. All conductors instilled a sense of acceptance, support, and belonging for their students while emphasizing strong musicianship and communicating a concrete program vision.

Teacher Effects on Student Behavior (7 articles). Teacher use of feedback impacts ensemble achievement and attitude; high school students responded positively to qualitative assessment (i.e., feedback) more than receiving directives alone (Dunn, 1997). Advancements in technology have made it possible for researchers to measure choristers' physiological responses

to conducting gestures, the observation of changes in physical tension (Fuelberth, 2003), initial breath (Manternach, 2012b), timbre (Brunkan 2013; Daugherty & Brunkan, 2013), intonation (Brunkan, 2013) facial movements, and mouth shapes (Manternach, 2012a). The use of acoustical data has been used to demonstrate relationships between ensemble intonation and a conductor's gesture Grady (2014).

Miscellaneous Descriptive Studies (1 article). Davis (1998) described observations and performance evaluations of two high school conductors preparing advanced and beginning choirs for contest.

Category 3: Teaching Methods/Techniques (15 articles)

Rehearsal Organization (1 article). Results from a nationwide survey of 239 middle/high school choral directors revealed a variety of common approaches to teaching repertoire and a predominant prioritization of tone quality and intonation (Ganschow, 2014).

Effects of Specific Techniques (8 articles). Articles in this subcategory explored the effectiveness of pairing physical and vocal warm-ups (Grady & Cook-Cunningham, 2018), pairing verbal cues with conducting gesture (Napoles, 2014), and using straw phonation to promote the use of a semi-occluded vocal tract (Manternach, Clark & Daugherty, 2017). Researchers also examined methods for teaching expressiveness (Broomhead, 2006, 2009; Broomhead, Skidmore, Eggett, & Mills, 2018) and teacher behaviors (e.g., pacing and verbalizations) that increase student-initiated learning and cognitive engagement in the rehearsal process (Freer, 2008, 2009a).

Singing Formations (5 articles). Articles published in this category characterized common preferences of singers (Aspaas, McCrea, Morris, & Fowler; 2004; Daugherty, 2003; Daugherty, Maternach, & Brunkan, 2013; Ekholm, 2000), directors (Daugherty, 2003; Daugherty

et al., 2013), and listeners (Daugherty et al., 2013; Ekholm, 2000) regarding ensemble performance spacing (Daugherty, 2003, Daugherty et al., 2013), and seating arrangements (Aspaas et al., 2004; Daugherty, 2003; Ekholm, 2000). Later studies employed the use of acoustical data to provide possible objective reasons for these preferences (Aspaas et al., 2004; Daugherty et al., 2013) and to report differing acoustical effects created by changes to singing formations, literature texture (i.e., homophonic versus polyphonic), and microphone placement (Morris, Mustafa, McCrea, Fowler, & Apaas, 2007).

Movement (1 article). Brunkan (2016) examined the relationship between singer mimicry of a conductor's gestures and the quality of performance.

Category 4: Teacher Education (49 articles)

Comprehensive Studies (6 articles). Professors incorrectly assume that students entering music education programs are able to identify a standard body of musical repertoire (Prickett & Bridges, 2000). Many NASM-accredited schools have similar student teaching prerequisites and procedures (Juchniewicz, 2018), but professors within these programs tend to prioritize the musical, instructional, and personal characteristics all music education students need to become effective teachers differently based on their own areas of expertise (i.e., choral or instrumental) (Rohwer & Henry, 2004). Results from single-university studies suggest that music education students' first teaching demonstrations are not strong predictors of their future success (Pembrook, Fuelberth, & Harden, 1999) and that they may display different teacher behaviors during internships based on their placement level (i.e., middle or high school) and area (i.e., choir or band) (Kelly, 2003). Abrahams (2009) examined the experiences of undergraduate music education

students and their cooperating teachers to describe the relationships, perceptions, and emotions during a practicum.

Choral Teaching Techniques (3 articles). There have been relatively few studies describing choral teaching techniques or how educators effect change. Researchers used experimental designs to examine the effects harmonic accompaniment instruction (Guilbault, 2009) and mode of laryngeal dissection instruction (i.e., laboratory versus virtual) (Brunkan & Mercado, 2018) on student learning outcomes, and used descriptive methods to report the common types and purposes of modeling observed in high school choral rehearsals (Grimland, 2005).

Error Detection (4 articles). Recent studies have found strong predictors of music education majors' error detection success, such as the location of the error (Napoles, 2012; Napoles, Babb, Bowers, Hankle, & Zrust, 2017), the frequency in which an error is heard (Napoles, 2012), the focus of attention (Napoles et al., 2017; Napoles, 2012), and the student's prior musical experience and aural skill success (Stambaugh, 2016). Amount of classroom experience is not a strong predictor of successful intonation error detection; both pre-service and in-service teachers tend to be overly critical when judging intonation (Hedden & Johnson, 2008).

General Teaching Techniques (9 articles). Researchers have described the effects of demonstrative videos (Scott, 1996) and acting techniques (Running, 2009) within the conducting classroom, an emotional intelligence program in a core music education class (McGinnis, 2018), and a problem-based learning curriculum in a choral methods course (Freer, 2017). Researchers have also created and implemented evaluative self-analysis (Biddlecombe, 2012; Napoles & Bowers, 2010) and hierarchical tools (Nápoles, Babb, Bowers, Garrett, & Vázquez-Ramos, 2013) that facilitate improvement of teacher verbal behaviors within the choral and teacher educator

classrooms. Qualitative research has been used to describe student teachers' perceptions and use of research literature (Strand, 2006a) and method students' peer interaction and growth as they learned to understand, play, and teach improvisation (Della, Pietra, & Campbell, 1995).

Perception and Self-Reflection (23 articles). Perceptual data of pre- and in-service teachers give teacher educators insight into what is seen as valuable and helpful in learning and implementing concepts within the classroom. Studies conducted at single universities suggest that music education students believe universal design transfers well to different ensemble settings (Whipple & VanWeelden, 2012) and popular music can be an effective tool in teaching the national standards (Springer & Gooding, 2013). Broader studies found preservice teachers value many of the same skills and behaviors as highly as experienced teachers do (Teachout, 1997). Music (Johnson, Darrow, & Eason, 2008) and music education (Napoles & MacLeod, 2016) majors tend to associate teacher effectiveness with teacher-student rapport (Johnson et al., 2008), confident delivery behaviors (e.g., engaged facial expressions), and an ability to maintain a student on-task environment (Napoles & MacLeod, 2016).

Studies measuring levels of self-efficacy found music education students have more confidence when they are able to practice strategies and techniques, such as classroom management (Bergee, 2002) and vocal improvisation (Ward-Steinman, 2007). Results from a single-university study found that music education students at all levels were moderately confident in their own improvisation abilities and were interested in learning how to teach the skill (Bernhard, 2013).

Self-evaluating and -analyzing recorded lessons allowed in-service music teachers to increase the number of sequential patterns (i.e., teacher-student-teacher interactions) (Arnold,

1995), and allowed preservice teachers to increase student performance time while decreasing the amount of teacher talk time (Nápoles & Vázquez-Ramos, 2013; Worthy, 2005). Furthermore, when given the opportunity, music education students at two universities evaluated their own teaching episodes similarly to instructors; they also tended to recall peer feedback more frequently than instructor feedback (Napoles, 2008). Choral conducting students reported an appreciation for online platforms to aid in self- and peer-reflection (Yoo, 2016), and for score reduction techniques (Wine, 1995).

Preservice music teachers are often inaccurate at predicting the success of their teaching day (Fredrickson & Pembrook, 1999, 2002) and shift from self-centered to student-centered focus during the student teaching semester (Stegman, 2001, 2007). Concept mapping (Butler, 2001) and guided journaling have been used to give teacher educators insight into the thoughts, beliefs, and needs of their method students (Conkling, 2003; Fredrickson & Pembrook, 2002), student teachers (Fredrickson & Pembrook, 1999; Stegman, 2001, 2007), and in-service music teachers (Butke, 2006); these activities also helped the pre- and in-service teachers to reflect on their teaching, rehearsing, and planning. Two studies examining in-service teachers provided insights into the motivations, perceptions, and self-reported practices of music cooperating teachers (Palmer, 2018) and a noncredentialled choir director (Martin, 2018).

Preservice Social/Identity (4 articles). Recent qualitative studies used different frameworks to analyze and describe common influences, experiences, beliefs, and processes music education students (Parker & Powell, 2014; Thompson & Campbell, 2003) and new teachers (Dabback, 2018) encountered as they developed their music teacher identities. Results from a

multi-university study indicate that social skill inventories may help predict aspects of preservice teachers' success in the classroom (Hamann, Lineburgh, & Paul, 1998).

Category 5: Student Characteristics (64 articles)

Social and Personal Characteristics (10 articles). Results from a two-part study found no significant differences in the singing abilities of middle schoolers who chose to continue music instruction and those who did not (Demorest, Kelley, & Pfordresher, 2017). Four studies have found that secondary students report joining musical ensembles for the social benefits and support, the love of music, and for a balance of their academic commitments (Adderley, Kennedy, & Berz 2003; Demorest, Kelley, & Pfordresher, 2017; Parker, 2014, 2018). They continue to participate because of a sense of belonging, pride, identity, and a desire to give back (Adderley et al., 2003; Parker, 2014, 2018). However, students also report not knowing how to join choir, and once enrolled in a choral ensemble, they can feel behind in learning routines and requisite music literacy skills (Parker, 2014). Strong indicators of secondary students' self-efficacy in music are prior mastery experiences, verbal and social judgments by others important to the individual, their level of engagement, and vicarious experience through others (Zelenak, 2015). Nichols (2014) conducted a case study that described the personalities, perceptions, music participation, and music consumption habits of two non-music major men's glee club members.

Three studies used inventories to describe how music students fit into commonly used psychological constructs. MacLellan (2011) compared secondary music students to their non-music peers using Myers-Briggs Type Indicator; Torrance and Bugos (2017) used the Big Five Personality Inventory to compare university music students by type of ensemble and instrumentation. Gumm (2004) sought to determine if results from Kolb's Learning Style

Inventory and Asmus' Motivation for Music Measures could predict secondary choral students' perceptions of music teaching style and to gauge singers' learning styles and motivations. A fourth study used multiple inventories to explore relationships among parent involvement and secondary students' music aptitude, attitude, and ensemble choice (Zdzinski, 2002).

Perceptions and Ratings (42 articles, 7 subheadings).

Perceptions and Motivation (5 articles). Members of a middle school male ensemble perceived choir as fun because they liked to sing, enjoyed the social aspects of being in an ensemble, and felt a sense of belonging (Sweet, 2010); collegiate singers reported joining choir for a variety similar reasons, but revealed different amounts of dedication based on the level of their ensemble (Dakon & Major, 2017; Major & Dakon, 2016). Results from studies conducted at a single high school indicated overall positive behavioral effects of participating in choral contests; however, perceptions and motivations of participation differed by age and gender (Stamer, 2004, 2006).

Perceptions and Pacing (4 articles). A teacher's pacing and affect are extremely important to students' perception of teacher effectiveness. Music education majors rate rehearsals to be most effective when instruction is accurate, pacing is fast, and student-centered activity levels are high, with very few student off-task behaviors (Yarbrough & Henley, 1999; Yarbrough & Madsen, 1998). Preservice teachers perceive fast back and forth pacing more positively than slower interactions, regardless of the ratio of teacher to student activity (Duke, Prickett, & Jellison, 1998), and undergraduate, masters, and doctoral students rate the combination of good delivery and poor

content higher than the combination of poor delivery and good content (Hamann, Baker, McAllister, & Bauer, 2000).

Perceptions and Conductors (10 articles). Since the early 2000s, researchers have sought to discover if undergraduate music majors' (VanWeelden 2002, 2004; Vanweelden & McGee, 2007), undergraduate ensemble members' (Nápoles, Babb, & Willie, 2014; Nápoles & Silvey, 2017; Silvey & Fisher, 2015) and secondary music students' (Morrison & Selvey, 2014; Napoles, 2013) perceptions of conductor effectiveness and ensemble ratings are influenced by a conductor's size (VanWeelden, 2002), race (VanWeelden, 2004; Vanweelden & McGee, 2007), posture, facial expressions (VanWeelden, 2002, 2004), use of conducting plane (Silvey & Fisher, 2015) and baton (Nápoles & Silvey, 2017) at different tempi (Nápoles, Babb, & Willie, 2014), and level of expressivity through use of gestures, facial expression, and body movement (Morrison & Selvey, 2014; Napoles, 2013). When asked to describe characteristics of effective and ineffective choral conductors based on prior experiences, collegiate singers—especially those with less experience—tended to list personal attributes, communication skills, and aspects of musical knowledge (Skadsem, 1996). Fuelberth (2004) studied the effects of various left-handed conducting gestures (e.g., stabbing vs. horizontal phrase-shaping) on secondary and collegiate singers' perceptions of their own vocal tension during responsive performances.

Perceptions and Listening (7 articles). Most people can hear good versus poor blend, regardless of their level of musical experience (Daugherty, 1999; Killian & Basinger, 2007). Trained musicians tend to respond to blend (Killian & Basinger, 2007), formant resonance (Ford, 2003), and specific choral formations and spacing (Daugherty, 1999) differently than their untrained peers; they also rate professional ensemble recordings higher overall than high school

ensemble recordings (Napoles, 2009). Collegiate musicians' ratings of a performance improve if they have personal experience with the work (Davis, 2003) or are able to view a score while listening (Napoles, 2009). Collegiate choral ensemble members also tend to accurately assess where they focus their attention when listening to music with varying harmonic complexities; this focus can vary based on part assignment (e.g., soprano) (Williams, 2009). Cosenza (2002) examined middle schoolers' preferences of motets from different eras.

Perceptions and Feedback (4 articles). According to survey results, secondary choral students want to receive specific feedback and opportunities to improve (Stamer, 2009), but the feedback should be accurate and directed at specific targets or behaviors (Schmidt, 1995). Further results show students do not appreciate normative assessment (i.e., peer-comparisons) (Schmidt, 1995), and can interpret feedback differently based on their familiarity with the teacher or their own level of musical self-efficacy (Taylor, 1997). Collegiate choral ensemble members believe the use of real-time visual acoustic technology feedback paired with conductor directives and verbal feedback can augment their rehearsal experiences (Nix, Mabry, & Mathews-Muttwill, 2008).

Perceptions of Musical Experiences (8 articles). Three longitudinal studies documented perceptual changes of high school choir students as they learned a large work (Silvey, 2005), interacted with intergenerational ensemble members (Conway & Hodgman, 2008), and participated in a peer-mentorship program in which singers with and without disabilities were paired (VanWeelden, Heath-Reynolds, & Leaman, 2017). An additional three studies reported common perceptual themes of individual choir members' experiences, emotions, and thoughts. Freer (2009b) characterized the musical identity development of three high school males; Sweet

(2018) documented female collegiate singers' memories, perceptions, and experiences revolving around the female changing voice; and Parker (2011) described common philosophical themes about music making that emerged from interviews with 18 juniors and seniors enrolled in high school choral programs. The final two studies examined secondary choir students' perceptions of incorporating movement in the choral classroom (Paparo, 2016), and female collegiate singers' perceptions and behaviors regarding the self-regulation of vibrato (Mann, 2014).

Miscellaneous Perception Findings (4 articles). Results from the remaining studies indicate that secondary choral students tend to have accurate predictions of their own musical knowledge and performance abilities (Darrow, Johnson, Miller, & Williamson, 2002), tend to have more anxiety for technological assessment than for both live and pre-recorded performances graded by humans (Henry, 2015), tend to have different perceptions of the amount of music and the number of performance-concept questions asked during rehearsals than their teachers (Haston, 2013), and report few perceptual differences in aspects of classroom environment whether they are Hispanic or non-Hispanic, and whether they are participating in choral programs with or without proportionate Hispanic enrollment (Lind, 1999).

Behavior (3 articles). Two studies continued exploring lines of past research, providing further evidence that the type and octave of a model can impact the pitch matching scores of uncertain (Yarbrough, Morrison, Karrick, & Dunn, 1995) and average choral singers (Riegle & Gerrity, 2011); other factors that can contribute to pitch matching ability are age (Yarbrough et al., 1995) and an individual's piano experience (Riegle & Gerrity, 2011). Skadsem (1997) found that secondary and collegiate singers respond differently to the way in which dynamic cues are given (e.g., verbally vs. written notation).

Enrollment (9 articles). Researchers have explored and described students' plans for future music involvement at the middle school (Warnock, 2009), high school (Ayling & Johnston, 2005; Walker & Hamman, 1995) and collegiate (Ayling & Johnston, 2005; Bowles, Dobbs, & Jensen, 2014) levels. A 27-year longitudinal study conducted by Elpus (2015) found females are consistently overrepresented in choir, band, and orchestra. Ensemble members at the secondary (Lucas, 2011; Walker & Hamann, 1995) and collegiate (McCrary, 2001; Tipps, 1995) levels report joining choir for the social and musical benefits; collegiate singers attribute the choice to participate in future musical ensembles based on support, community, and self-efficacy (Sichivitsa, 2003).

Category 6: Other Miscellaneous Articles (21 articles)

Vocal Health (12 articles). The comparatively large number of articles published in the past decade reflect the profession's current concern about vocal health. Five studies expressed concerns regarding music educators' vocal health that included vocal fatigue (Baker & Cohen, 2017; Brown, 2017; Hackworth, 2010) diminished vocal capacity (e.g., range, volume) (Schwartz, 2009), and elevated rates of voice disorders (Doherty & van Mersbergen, 2017). Schwartz (2012) tested variables (e.g., age, vocal health education) that might predict choir directors' results of a vocal health index, but found no significant relationships; furthermore, speech-language pathologist ratings of music and non-music teacher voice recordings indicated no significant differences in vocal health (Hackworth, 2013). An eighth study tracked the vocal behaviors and health of four choral undergraduates throughout their student teaching practicum (Brunkan, 2018).

Researchers have monitored and documented vocal health perceptions and behaviors of high school (Daugherty, Manternach, & Price, 2011) and collegiate (Baird, Mokhtari, Sung, &

Erickson-DiRenzo, 2018; Manning, 2014; Watts, 2016) singers; their findings indicate frequent self-reports of vocal distress and symptoms of an unhealthy voice.

Contest and Festivals (3 articles). Studies in the contest and festival category focused solely on adjudication. Norris and Borst (2007) found adjudicators are more likely to listen for specific objectives and provide specific, reliable feedback when detailed expectations are listed on adjudication forms; Latimer (2007) provided further evidence of poor adjudicator inter-reliability; and Riggs (2011) investigated relationships between contest scores and new conductor succession.

Other Studies (6 articles). Three articles examined topics often discussed in the current music education climate: decreased funding, increased job responsibilities (Burrack, Payne, Bazan, & Hellman, 2014), teacher training and retention in urban settings (Baker, 2012), and sources of stress that are unique to music educators (Gordon, 2000).

Walker and Young (2003) described music professors' perceptions of collegiate gospel choirs, and Major (2017) characterized the practices and challenges associated with building midlevel collegiate choral ensembles. Cook-Cunningham, Grady, and Nelson (2012) used technology to discover the sound doses experienced by collegiate singers participating in opera choruses.

DISCUSSION

Perhaps the most exciting finding of this review was the remarkable increase of research being conducted and published in choral music education. Gonzo (1973), Hylton (1983), and Grant and Norris (1998), all of whom included dissertations in their reviews, noted that researchers rarely continued their lines of inquiry beyond terminal degree requirements and seldom published their findings. Our results, which exclusively examined peer-reviewed articles, show that many scholars

entering the field are continuing their work and publishing in multiple journals. Furthermore, data indicate the emergence of a collaborative trend; nearly a third of studies were conducted by more than one author, and many research pairs and groups published multiple articles that continued lines of inquiry. These positive shifts have been aided by both the growing numbers of journals, symposiums, and conferences and the advancements in technology, which have eased the processes of data sharing, communication, accessibility, and publication.

As can be witnessed by the number of sub-categories added, the breadth of topics researchers are exploring is also expanding. Gonzo and Hylton described the overall body of research in the choral field as "fragmented and narrow in scope." While Grant and Norris noted some improvements by the mid-1990s, they echoed the concern of fragmentation. This review shows a marked increase in the number of areas that exhibit growing bodies of evidence; certain lines of inquiry, such as sight singing and enrollment, have remained strong, while new topics (e.g., vocal health and student perceptions) have emerged. In addition, researchers are adapting methodologies from other realms (e.g., sports and vocal sciences) and using the advancement and accessibility of technology to alter the way in which certain aspects of rehearsal and performance are studied. Although relatively few articles have been published, we note the increase in more objective measures of vocal performance (e.g., spectrometry) that has the potential to inform our understanding of effective rehearsal and performance practice.

However, our review also indicates that the overall body of choral education literature remains fragmented with many obvious gaps in a variety of vital areas; instructional materials, teaching style and class environment, rehearsal organization, movement, and teaching techniques specific to the choral setting have four or fewer articles (i.e., including cross-listings) published

since 1995. The Teaching Method and Rehearsal Technique category, which has been deemed as extremely valuable to practicing teachers since the very first choral education survey (Darrow, 1965), accounts for less than 8% of choral education research. The vast majority of subject matter trends (e.g., commonly shared experiences, perceptions, and social characteristics of choir students, and self-assessment) can be found in the Teacher Education and Student Characteristics categories, which accounts for 58.54% of the surveyed research. While increases in the number of topics being explored and the number of articles being published are positive developments, both the overall body of choral research and findings from within single subcategories remain relatively incohesive.

The authors of previous reviews were very concerned about communication and collaboration with the practitioners in our field. Gonzo and Hylton, specifically, were unreserved in their call for change in the choral research enterprise, a challenge which can still be echoed today. A third of the studies cited in this review described student characteristics and perceptions, indicating that many researchers are aware of a student-focused climate and would like to address the concerns of teachers, administrators, and professionals. While these studies are informative, few compared dependent measures with objective data, or provided tools or insight that could directly impact teacher behavior or student participation and performance.

Furthermore, choral music education research remains relatively void of experimental studies designed to explore relationships between teacher behaviors and student outcomes in the ensemble setting. A majority of such studies that do explore the effects of teaching techniques are often focused on students who are more easily accessed within teacher education programs. Yes, regulations, while vital to participant safety and privacy, make the navigation of school-aged

student-centered research more cumbersome, but communicative and collaborative teams of practitioners and researchers have the potential to conduct proactive studies that result in informative and positive change.

A survey of the past 24 years of choral education research shows many progressive and promising trends; there is no doubt that researchers are working extremely hard to inform the profession and expand the foundation of choral research. It is our opinion that the areas that have seen the most meaningful and cohesive growth within the overall body of research are a result of collaboration. With few exceptions, these collaborations have taken place outside the secondary classroom, meaning that the disconnect between academia and the classroom—which was underscored by all previous authors—remains a persistent concern. It is our hope that young researchers entering the field will choose to tackle the more challenging areas in experimental research, creating foundations upon which practitioners can base their decision making, teaching practices, and curriculum design.

We suggest that future research include the examination of variables meant to effect change in the performance of secondary-level choral ensembles, the use of student performance as a dependent measure to describe the characteristics of effective choral teaching, the adaptation of protocols that have been widely and successfully used to describe effective teaching in the instrumental setting (e.g., Goolsby, 1999; Worthy, 2003), and collaboration between scholars and practitioners to inform our understanding of human learning in this context. This systematic review is meant to inspire action and to serve as a resource for those entering the field ready to make a meaningful contribution to choral research.

Chapter III: Characterizing Choral Conductor Expertise

The study of expertise in the field of education is meant to illuminate aspects of teaching that can be used as a model for novices, experienced practitioners, and teacher educators (Berliner, 1986; Ericsson, 2005; Madsen & Standley, 1992). As was revealed in the previous chapter, only one peer-reviewed article in the past 24 years sought to examine and analyze the behaviors of an expert choral conductor (Yarbrough, 2002). This dearth of studies can be attributed to many confounding factors, including the need to define expertise, identify individuals who display the described skillsets in ways that consistently effect positive ensemble growth, and gain permission to study the individuals in context (Berliner, 1986, 2001; Standley & Madsen, 1991). These methodological tasks have the potential to become more easily achieved as the body of research describing choral conductors' expert behaviors and characteristics grows. The following case study is meant to broaden the picture of choral expertise by comparing the quantitative behavioral analysis of Robert Shaw (Yarbrough, 2002) and the qualitative descriptions of three artist-instructors (Duke & Simmons, 2006) to the observed rehearsal behaviors of a world renowned, Grammy Award-winning choral conductor.

Review Of Literature

The definition of teaching expertise is fluid out of necessity; teaching requires numerous, complex combinations of skillsets that can vary based on relational, situational, and contextual factors (Berliner, 1986; 2001). This lack of a concrete description often prompts researchers to use terms such as "experienced" or "exemplary," thereby negating potential perceptions by peers of subjective participant selection. However, studies have found that experts behave (Marcum, 2017) and perceive tasks (Standley & Madsen, 1991) differently than their similarly experienced peers.

In other words, experience does not equate to expertise (Berliner, 1986, 1994, 2001; Duke, 2015; Ericsson, 2008; Ericsson, Krampe, & Tesch-Römer, 1993; Standley & Madsen, 1991).

Music researchers who have use the label "expert" typically use a combination of factors that include years of experience, strong records of presenting, achieving consistent superior contest ratings or receiving teaching awards, and positive recommendations from professionals in the field (e.g., Colprit, 2000; Duke & Simmons, 2006; Ekholm, 1997; Goolsby 1997, 1999; Hickey, 2015; Millican, 2013; Millican & Forrester, 2018; Montemayor, 2016; Standley & Madsen, 1991; Stanley, 2018; Worthy, 2003, 2006; Worthy & Thompson, 2009). The vast majority of these studies have examined expert behaviors or perceptions in individual (Blackwell, 2018; Cavitt, 1998; Colprit, 2000; Duke & Simmons, 2006; Marcum, 2017; Parkes & Wexler, 2012; Stanley, 2018) and ensemble (Bergee, 2005; Cavitt, 2003; Goolsby, 1996, 1997, 1999; Henninger, 2018; Millican, 2013; Worthy, 2003, 2006; Worthy & Thompson, 2009) instrumental music settings. Other than Yarbrough's (2002) study of Robert Shaw and a few notable dissertations (e.g., Cruse, 2011; Derby 2001), peer-reviewed music education research remains void of both the label and subsequent descriptions of expertise in the choral setting.

Comparative studies reveal that experts and nonexperts often exhibit similar rehearsal behaviors, practices, and verbalizations (e.g., targeting the same musical elements, Goolsby, 1997, 1999; or cuing instruments during rehearsal, Bergee, 2005), but have different student performance outcomes (Goolsby, 1999). Expertise, therefore, cannot be explained by rehearsal practices or sets of behaviors and verbalizations; the difference between expert and nonexpert music instruction instead lies in the timing, duration, type, and frequency of executing these behaviors.

Teacher "intuition" that allows experts to accurately assess classroom activities (Berliner, 1986; Standley & Madsen, 1991) or student musical outcomes (Millican, 2013) from a single glance is created by years of deliberately pursuing pedagogical growth. Experts are extremely knowledgeable in their content areas and have developed the ability to anticipate, evaluate, and diagnose performer outcomes by comparing current student behaviors to ideal performance behaviors (Bergee, 2005; Duke & Simmons, 2006; Henninger, 2018; Millican, 2013; Stanley, 2018). In addition, expert instructors have strong auditory images of the repertoire and ideal sound production; these mental models allow them to set and tenaciously pursue specific targets that move students toward the performance goals (Blackwell, 2018; Duke & Simmons, 2006; Henninger, 2018; Millican, 2013; Stanley, 2018; Worthy, 2006).

Compared to others, experts use more drill and repetition while pursing targets (Cavitt, 1998; Goolsby, 1997), deliver more feedback (Bergee, 2005; Goolsby, 1997, 1999; Pike, 2014), address more performance factors in a shorter length of time, dedicate more time to student performance (Goolsby, 1999; Pike, 2014), and deliver more consistent (Kinney, 2009; Montemeyer, 2016) and staid evaluations of performance improvement (Montemeyer, 2016). Research suggests that students are able to achieve success in less time (Goolsby, 1999) and with higher ratios of positive to negative achievement outcomes (Derby, 2001) because experts are able to quickly and accurately identify technical and musical problems, efficiently isolate and deconstruct given tasks into achievable proximal targets, and then re-contextualize the material in a systematic manner (Cavitt, 2003; Derby, 2001; Duke & Simmons, 2006; Henninger, 2018; Worthy, 2006). Expert teachers know the abilities of their students, remember past performances, and have predictions about future outcomes. These factors enable them to be proactive in

sequencing, giving directions, and selecting which performance factors they attend to during a given performance trial (Cavitt, 2003; Duke & Madsen, 1991; Duke & Simmons, 2006; Marcum, 2017; Millican, 2013; Henninger, 2018; Parkes & Wexler, 2012; Pike, 2014).

Behavioral analyses of how expert instructors address error correction reveal striking similarities, despite differences in settings and levels. Experts consistently target musical elements (e.g., tone, rhythm, pitch) and use rapid, brief, and often repetitive teacher-student interactions (i.e., directives, student performance, feedback) until the identified targets are achieved (Colprit, 2000; Derby, 2001; Goolsby, 1997; Worthy, 2003, 2006; Worthy & Thompson, 2009; Yarborough, 2002). Although overall ratios of positive to negative feedback may vary by instructor, high frequencies of accurate, specific negative feedback were seen in all ensembles and applied voice lessons (Bergee, 2005; Cavitt, 2003; Derby, 2001; Goolsby, 1997, 1999; Stanley, 2018; Worthy, 2003, 2006; Worthy & Thompson, 2009). Furthermore, the analysis of behaviors observed during rehearsal frames[2] in secondary school band rehearsals (Cavitt, 2003; Worthy, 2003), collegiate wind ensemble rehearsals (Worthy, 2003, 2006), and individual Suzuki string lessons (Colprit, 2000) showed similar percentages of teacher verbalizations (46-53%) and student performance time (39-46%). While the rehearsal frames of expert secondary school choral directors indicated substantially less teacher verbalization (29-34%) and more student performance time (54-57%) (Derby, 2001), their use of modeling was consistent with all other expert ensemble directors (5-9%).

[2]A framework in which 1) a target is identified, 2) success is achieved through limitation, decontextualization, and/or remediation, and then 3) the material is re-contextualized (Duke, 1994).

In 2006, Duke and Simmons published a qualitative description of common characteristics and behaviors shared among three artist-level instructors: pianist Nelita True, violist Donald McInnes, and oboist Richard Killmer. Each instructor was observed and recorded teaching applied lessons at their home institutions to students whose age and experience ranged from the high school to the doctoral level. The researchers reviewed 8-9 footage hours of each instructor, analyzed and discussed observations, and took note of 19 common elements present in the majority of all lessons. This characterization of expert applied music teaching provided a foundational framework to describe how expert instructors set goals and expectations, effect change, and convey information. Researchers have since used the framework to describe the attributes of secondary band directors (Henninger, 2018) and applied voice (Stanley, 2018) and instrumental (Blackwell, 2018; Parkes & Wexler, 2012) instructors. The authors made minor modifications, added additional elements, and took note of absent behaviors. Every single original element has been observed in at least one additional setting, and 13 are present in three or more settings. The prevalence of the observed teaching elements across varied institutions, levels, contexts, and instruments provide evidence that expert music teaching can be characterized into specific instructional practices.

As previously mentioned, there are few characterizations of choral expertise that have undergone peer-review. The most notable comes from Yarbrough's (2002) behavioral analysis of Robert Shaw. "A Choral Workshop on Brahms's *A German Requiem"* documents the first two days of a five-day intensive workshop culminating in a performance at Carnegie Hall. Yarborough's data came from 22 brief rehearsal clips (total 74.55 minutes; range 74-404 seconds) of Shaw rehearsing 145 auditioned professional singers. While the quantitative data Yarbrough

presented gives insight into how Shaw was able to improve performance in the moment, it does not allow for a longitudinal view of expert behavior across an entire rehearsal process.

Two notable dissertations have sought to describe aspects of choral teaching expertise. Derby (2001) described how expert elementary, middle, and high school choir directors improve singing performance by analyzing teacher behavior and performance targets during rehearsal frames. Despite the obvious differences in age and experience level of their students, all 12 teachers pursued similar musical targets (e.g., diction, tone), taught similar content and curriculum, and displayed similar rehearsal behaviors (e.g., modeled at similar rates, used more negative than positive feedback).

Cruse (2011) qualitatively described how an expert choir director used improvisational teaching (i.e., a teacher's flexible and responsive alteration of a lesson meant to maximize student learning) to effect change, communicate, and build relationships with her students. The findings indicate common behaviors observed in other expert music instructors, including a clear auditory image, an ability to clearly articulate and tenaciously pursue musical targets, the frequent use of modeling and critical feedback, and an awareness of past and present performances that inform future instruction.

Results from the small body of research examining how experts improve performance in the choral setting show signs of similar traits and behavioral tendencies as have been observed in the instrumental context: choral experts have a strong foundation of content knowledge and clear auditory images upon which they structure their feedback and directives; they identify and address musically relevant and important targets; and they adjust their rehearsal behaviors in response to the level of ensemble they are directing. However, choral education research has yet to describe

the combined behaviors and traits an artist-level choral conducting expert employs to effect change during an entire rehearsal cycle.

The purpose of this descriptive case study was to characterize expertise in choral rehearsing by analyzing a professional conductor's behavior using the framework of music teaching expertise described Duke and Simmons (2006). Craig Hella Johnson, the acclaimed Founder and Artistic Director of Conspirare, is a world-renowned conductor, composer, educator, and clinician. Johnson also serves as the Music Director of the Cincinnati Vocal Art Ensemble, Artist in Residence at Texas State University, and conductor emeritus of the Victoria Bach Festival. He is a world-renowned conductor, composer, educator, and clinician. He has previously served as the Artistic Director of Chanticleer, Director of Choral Activities at The University of Texas at Austin, and has guest conducted many national and international symphonies, and is the recipient of countless awards, including a Grammy® award for Best Choral Performance, The Michael Korn Founders Award for Development of the Professional Choral Art, and the designation of official Texas State Musician.[3]

We contacted Johnson through the Artistic and Managing Director of Conspirare and were granted permission to observe an entire rehearsal cycle that preceded a concert tour. Our aim was to describe how Johnson sets goals and expectations, effects change, and conveys information across all intact rehearsals held in preparation for these public performances. A secondary purpose was to compare Johnson's behaviors to those of other experts in the music field (e.g., Cavitt, 2003; Duke & Simmons, 2006; Worthy, 2003).

[3] For a more detailed biography of Johnson and to hear Conspirare recordings, see https://conspirare.org/about-us/craig-hella-johnson.

METHOD

We attended a two-day intensive rehearsal cycle comprising seven ensemble rehearsals in which Johnson introduced and prepared full and small ensemble repertoire for a concert tour. In total, we collected approximately 6.5[4] hours of full ensemble (SATB) rehearsal footage. Because our intent was to observe how Johnson improved performance in the full ensemble setting, we chose to exclude rehearsal time devoted to repertoire that involved fewer voices (e.g., quartets, treble-only); it is important to note that full ensemble repertoire constituted a majority of the program.

First, using Duke and Simmons' (2006) qualitative framework, both authors viewed the full SATB rehearsal footage independently and documented demonstrations of the original 19 elements of expert teaching identified by Duke and Simmons. Discrepancies between the results of the two observers were resolved by discussion and reviews of the original framework and footage. Following the analysis of qualitative results, we analyzed the frequencies and durations of rehearsal behaviors commonly reported in expert music research using SCRIBE 4 software (Duke & Stammen, 2011). Measures included duration of teacher and ensemble activity, and frequencies of teacher verbalizations (specific and nonspecific positive feedback, specific and nonspecific negative feedback, general and critical directives), ensemble performance (full ensemble, small ensemble, individual), and rehearsal frame outcomes (improved or unimproved).

Finally, we conducted an analysis of rehearsal frames during the five non-dress rehearsals to provide further detail about the frequencies and durations of behaviors observed when Johnson

[4] Johnson scheduled approximately 8 hours of rehearsal time for the full ensemble over the two-day period. Actual rehearsal footage obtained was 6 hours and 20 minutes. The time discrepancy was due to two things: we chose not to analyze a 40 min logistical rehearsal that did not include singing (i.e., blocking), and some time was lost due to a malfunctioning fire alarm system.

was targeting specific aspects of the ensemble's performance that required change. Reliability between two independent observers using the same systematic analysis of 36% of the rehearsal frame footage was .83.

QUALITATIVE RESULTS

Our observation and analysis of Johnson's rehearsals revealed the consistent presence of all 19 common elements found among artist-level instructors as described by Duke and Simmons (2006). Descriptions and examples of the elements are presented using the framework from the 2006 article; Duke and Simmons' original text is indicated in italics. A complete list without descriptions can be found in Appendix C.

Goals and Expectations

The repertoire assigned students is well within their technical capabilities; no student is struggling with the notes of the piece. Although the singers Johnson works with are professional, there are consistent examples of his awareness of how each selection fits individual singers and the ensemble as a whole. He clearly selected works and assigned solos for the voices within the ensemble in a way that allowed for attention to be placed on musical expression. Furthermore, Johnson preemptively created flexibility for his ensemble by printing "Repertory selected from," at the top of his programs. The structure of the rehearsal and performance schedule meant that the selection and commission of repertoire was printed well before the singers arrived for rehearsals. Although all of the music was well within reach of the singers, Johnson's planning allowed him to select and rehearse the repertoire that best displayed his ensembles' skill and ability.

Teachers have a clear auditory image of the piece that guides their judgments about the music. Johnson's consistent auditory image is extremely evident when observing his gestures and

listening to his directives, feedback, and modeling. As with the artist-instructors, Johnson was never hesitant in describing technical and musical goals. He typically couched verbal information in terms of achieving his auditory image, and over the course of rehearsals, the verbalizations, most of which had to do with musical effect more than pitch, became more rapid and specific. Johnson often gave strong cues or preemptive directives during performance, which points to his predictions of discrepancies between the singers' performance and his auditory image. Even when rehearsing unfamiliar repertoire, such as the commissioned work that Conspirare was premiering, Johnson had clear expectations of how the work should sound. This became extremely observable and notable, as Johnson, the composer, and the ensemble discussed the stories and emotions they were striving to portray.

The teachers demand a consistent standard of sound quality from their students. Although this might seem less obvious due to the professionalism of the singers, Johnson's high expectations of tone and pitch were extremely evident. His warm-ups, numerous verbalizations, and multiple rehearsal frames focused on the unification of perfect intonation, blend, and vowel placement. Comments, such as, "You know, if I were dealing with any other musicians, I would accept the G and call it great, but I can expect more out of you," portray Johnson's high expectations for the ensembles' sound quality.

The teachers select lesson targets (i.e., proximal performance goals) that are technically or musically important. Johnson allowed many obvious errors to pass unnoted, rarely addressing arbitrary mistakes, and expecting the professionals to address their own inaccuracies. Instead, the errors that Johnson chose to address dealt with overarching points—how the error (e.g., balance,

intonation, tempo and rhythm consistency) affected the overall expression of musical ideas. The targets he chose were meant to make the largest impact quickly.

Lesson targets are positioned at a level of difficulty that is close enough to the student's current skill level that the targets are achievable in the short term and change is audible to the student in the moment. Johnson seemed to have an ability to know when errors could be addressed with a single verbalization, and when isolation and decontextualization was needed to accomplish a goal. Every target Johnson set was met with either improvement or successful achievement. At times, Johnson chose to accomplish sets of goals that did not result in a perfect performance (e.g., missed notes or entrances), and instead focused rehearsal frames and directives toward targets that could be improved within the moment by all singers. These rehearsal behaviors improved the ensemble sound quickly and gave individuals more trials to fix their errors. It is important to note that Johnson, at times, chose to leave identified targets as unimproved; these targets were almost always addressed and improved in later rehearsals.

The teachers clearly remember students' work in past lessons and frequently draw comparisons between present and past, pointing out both positive and negative differences. Johnson clearly remembered minute details from prior rehearsals. He made frequent comments about music "settling in," and "coming together," and set targets based on performances during prior rehearsals. Johnson also made comments and delivered directives about performance factors (e.g., creating a similar tone) that referred back to previous concerts and performance.

Effecting Change

Pieces are performed from beginning to end; in this sense, the lessons are like performances, with instantaneous transitions into performance character; nearly all playing is judged by a high standard, "as if we are performing." Johnson typically began the rehearsals of individual pieces with a full performance; only catastrophic errors elicited a stop (e.g., opening drum solo not in time). Frequently, before the actual singing began, Johnson would provide information or feedback—that often included modeling—from previous rehearsals. These comments allowed the ensemble to reacquaint themselves with the work, focus their attention on problematic sections, and attempt to achieve an ideal sound with fewer rehearsal trials.

In general, the course of the music directs the lesson; errors in student performance elicit stops. Johnson did not always stop for individual audible errors; he allowed the professionals to self-correct intermittent, individual errors. Johnson did stop for errors that were more indicative of section- or ensemble-wide problems. When Johnson halted a performance to identify a target, which typically related to a technical error or a discrepancy with his auditory image, he typically chose a musically intelligent place to stop (e.g., the end of a phrase).

The teachers are tenacious in working to accomplish lesson targets, having students repeat target passages until performance is accurate (i.e., consistent with the target goal). Johnson was undoubtedly tenacious in his pursuit of select goals, all of which contributed to the quality, characteristics, and effects that matched his auditory image. Although he often targeted specific section-wide pitch, rhythm, and intonation errors, his rehearsal frames often included additional targets (e.g., articulation) that allowed the singers to practice accurate performance with multiple trials. The transcript below of a rehearsal frame illustrates how singers were able to improve their

technical errors while continually improving expressive elements that drew them closer to Johnson's auditory image.

Johnson	"Can we check a couple things? Singers first, may we go first of all to measure 30. I want to try sopranos and altos for a few bars there: 'No colors, signals.' Okay, here's measure 30 with piano, please, soprano, alto."
Singers	Performance Trial 1 (with some pitch problems in the last few bars)
Johnson	"Thanks, and let's make that dynamic level shift to piano after you've been stronger, okay, coming down from mezzo-forte land. Here we go." (Models 'No')
Singers	Performance Trial 2 (Dynamic change with pitch problems)
Johnson	"May we just take altos 'colors' and then 'symbols.' Here's 'colors.'" (points at piano) "Just on the stick."
Singers	Performance Trial 3 (correct pitches, intonation problems)
Johnson	"A cappella 'colors'"
Singers	Performance Trial 4 (correct first harmonic interval-slightly out of tune, incorrect second harmonic interval)
Johnson	"Ah, yeah." (Models 'colors' of alto one) "great, now we're good. 'Colors'"
Singers	Performance Trial 5 (correct harmony, alto 2 is out of tune-especially the 'sig' of 'signals,' which Johnson holds and looks up waiting for change that does not occur.
Johnson	"One more time, we'll trust it."
Singers	Performance Trial 6 (first pitch is not in tune, Johnson cuts off)
Johnson	Points at his ear (the piano replays the pitches), makes a gesture, "Here we go."
Singers	Performance Trial 7 (correct harmony, 'sig' of 'signals' is out of tune)
Johnson	"Thank you, this time let's just taper off during 'colors,' diminish."

Singers	Performance Trial 8 (singers diminish through phrase, intonation is fixed)

Johnson frequently used modeling and feedback to improve performance. It is worth mentioning, that Johnson often stopped rehearsal frames one performance trial short of the ideal sound and expected the singers to mark and implement his final feedback during the next performance.

Any flaws in fundamental technique are immediately addressed; no performance trials with incorrect technique are allowed to continue. While examples of such fundamental flaws were not as readily seen due to singers' level of expertise, Johnson immediately and tenaciously addressed section- and ensemble-wide flaws (e.g., vowel shape, articulation, timbre, intonation) with verbal and gestural feedback. There were multiple instances in which individual singers who made technical mistakes would raise a hand or acknowledge their own flaws during performance. This alerted Johnson and fellow singers that they were aware of the mistake and allowed the rehearsal to proceed.

Lessons proceed at an intense, rapid pace. Johnson was extremely frugal with his time. Feedback was given rapidly after performances, as were directives that either resulted in more performance trials or signaled a change of repertoire. Johnson would often add additional directives (e.g., "crescendo" or "breath on downbeat") into the recontextualizations of rehearsal frames, to continue improving performance once original targets were met. Very little time was wasted, which was indicative of Johnson's clear rehearsal plan and musical expectations of the ensemble.

The pace of the lessons is interrupted from time to time with what seem to be "intuitively timed" breaks, during which the teachers give an extended demonstration or tell a story. Johnson was extremely aware of the singers' level of attention and focus, and need for mental and physical breaks. There were several instances of humor inserted after intense rehearsing, particularly with the difficult content of some of the repertory. Even during these breaks, Johnson made very few off-task comments, and instead used the time to describe the history or story behind the musical works.

The teachers permit students to make interpretive choices in the performance of repertoire, but only among a limited range of options that are circumscribed by the teacher; students are permitted no choices regarding technique. Due to the nature of ensemble performance, one might assume Johnson was the sole interpreter of the music. However, Johnson clearly gave soloists and ensemble members the ability to interpret the music and text during rehearsal and performance. This collaborative atmosphere, in which Johnson asked questions or metaphorically described an effect, gave singers the opportunity to make their own technical adjustments or make their own suggestions. Johnson listened to all ensemble member's comments, questions, and suggestions, and incorporated elements that blended well with his auditory image.

Conveying Information

Teachers make very fine discriminations about student performances; these are consistently articulated to the student, so that the student learns to make the same discriminations independently. Johnson's clear auditory image allowed him to refine every aspect of the ensemble's performance (e.g., tone, pitch, intonation, consonant placement) and deliver clear positive and negative models, directives, and feedback. Though the singers were extremely well

trained (i.e., they marked their music and rarely needed directives or feedback to be readdressed), Johnson would often prompt the ensemble to attend to previously addressed elements. When the singers did not perform a discrimination as directed, Johnson would either deliver instant feedback or isolate the task to give ensemble members an opportunity to hear the difference between their performance and his expectation.

Performance technique is described in terms of the effect that physical motion creates in the sound produced. As with the artist-instructors, Johnson's attention was consistently focused on the sound and effect created by the ensemble. He coupled the purpose of a physical motion (e.g., vowel placement, glottal attacks, use of formants) with the musical effect it created, and furthermore described and modeled how each technique should be performed. This practice kept the singers focused on the character of sound Johnson sought and eased their ability to transfer the technique to similar tasks.

Technical feedback is given in terms of creating an interpretive effect. Johnson rarely addressed technique without describing and modelling the sound, which allowed the singers to hear and produce the effect. Even during rehearsal frames targeting technical errors, the vast majority of directives and feedback were couched in the expressive nature the musical target would elicit.

Negative feedback is clear, pointed, frequent, and directed at very specific aspects of student's performances, especially the musical effects created. As previously noted, Johnson used a combination of negative feedback and pointed, critical directives that implied errors at frequent rate. Both types of verbalizations were brief, concise, and aimed at specific performance mistakes that impeded the overall musical effect. It is important to note that while Johnson delivered overt

negative feedback directly to a section or the ensemble, he typically addressed individual singer's errors with directives.

There are infrequent, intermittent, unexpected instances of positive feedback, but these are most often of high magnitude and extended duration. Johnson was extremely positive with his ensemble, often thanking them or delivering one-word positive verbalizations (e.g., good) at cut-offs. However, Johnson's use of specific positive feedback reflected the behaviors of the artist-instructors, in that it occurred rarely, but was emphatic, specific, detailed, and extended in duration.

The teachers play examples from the students' repertoire to demonstrate important points; the teachers' modeling is exquisite in every respect. Although each singer's instrument had different qualities and range, without exception Johnson was able to exquisitely demonstrate the musical and technical effects he sought. Johnson clearly embodied the music, knew every melodic and harmonic line of the repertoire, and often sang, whistled, vocalized, or gestured with his ensemble. His ability to pair negative models, which were extremely accurate to what had occurred, with ideal models enabled singers to correct flaws as well as hear and match his auditory image.

QUANTITATIVE RESULTS

During our initial viewing of the video footage, it became clear that there were marked differences in the frequencies and durations of conductor and ensemble behaviors between dress rehearsals and non-dress rehearsals. True to the nature of dress rehearsals—which are typically meant to mimic performance—Johnson did not halt performance during the final two rehearsals, but instead delivered feedback and directives immediately following the full run. To maintain our focus on how Johnson improved performance in rehearsal, we will distinguish these differences in

behavior by presenting data separately as either from rehearsals or dress rehearsals. The two dress rehearsals (i.e., part one and two of the concert) lasted 97 minutes. Approximately 75% of the full ensemble footage (4 hours and 43 minutes, range 30-90 minutes) came from five rehearsals, which included a small instrumental ensemble.

To provide additional data about error correction and an expert's ability to effect change, we conducted a frequency count of rehearsal frames (Duke, 1994). Rehearsal frames were only present in the rehearsal segments, and accounted for 22.33% of the full ensemble footage and 29.96% of rehearsal time. Of the 48 total rehearsal frames, 21 (43.75%) targeted full ensemble performance, 20 (41.67%) isolated section, small group, or individual performance, and 7 frames (14.58%) consisted of both full and small group performance. The mean duration of all rehearsal frames was less than two minutes (M = 105.96, SD = 98.00, range 16-529 sec.), with a mean number of performance trials of 2.67 (SD = 2.07, range 1-8). Johnson frequently modeled (M = 2.23, SD = 2.17, range 0-10) during frames, and only used the piano to model multiple parts simultaneously (M = 0.21, SD = 0.50, range 0-2).

Table 3.1: Percentages of Conductor and Performer Activity

Percentages of Activity Performance during Rehearsals, Dress Rehearsals, and Rehearsal Frames.

Activity	Rehearsals	Dress Rehearsals	Rehearsal Frames
Conductor Activity	37.60 (9.41)	15.15 (5.01)	47.61 (15.16)
Full Ensemble Performance	52.60 (9.38)	78.44 (6.00)	29.01 (28.18)
Small Group Performance	4.08 (1.61)	0.00 (0.00)	22.59 (24.64)

Note. Standard Deviations (SD) are indicated with parentheses.

Percentages of conductor, ensemble, and small group activity during rehearsals, dress rehearsals, and rehearsal frames can be found in Table 3.1. Rehearsal time that is unaccounted for in Table 3.1 (5.92%) can be attributed to discussion with the visiting composer, singer verbalizations (e.g., musical comments, questions), and transition time between pieces. The large standard deviations in rehearsal frame performance activities are due to the number of rehearsal frames that exclusively targeted full or small group performance.

Table 3.2: Conductor Verbalizations

Mean Frequencies of Conductor Verbalizations observed in Rehearsals, Dress Rehearsals, and Rehearsal Frames.

	Mean Frequency		
Conductor Verbalizations	Rehearsal	Dress Rehearsal	Rehearsal Frame
Positive Specific Feedback	2.00 (2.35)	1.50 (2.12)	0.04 (0.20)
Positive Non-Specific Feedback	25.20 (9.60)	9.50 (4.95)	1.33 (1.29)
Negative Specific Feedback	4.40 (4.56)	0.00 (0.00)	0.27 (0.57)
Negative Non-Specific Feedback	0.60 (1.35)	0.00 (0.00)	0.00 (0.00)
General Directive	48.00 (26.49)	15.50 (13.44)	4.73 (3.34)
Critical Directive	41.80 (13.03)	10.00 (5.66)	1.83 (2.35)

Note. Standard Deviations (SD) are indicated with parentheses.

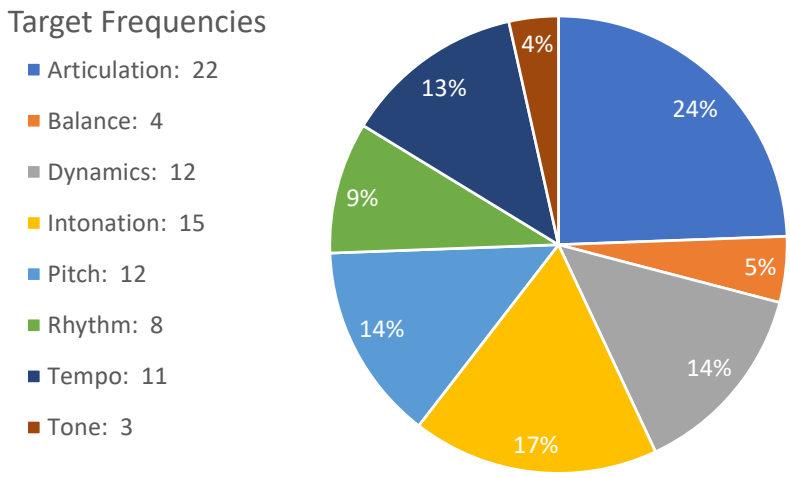
Differences in the frequency of Johnson's verbal behaviors (i.e., directives and feedback) are presented in Table 3.2. Feedback was characterized as positive or negative, and specific or nonspecific. During our observation, we noticed that Johnson often gave directives that strongly implied dissatisfaction with a performance task (e.g., "Let's go back and get that F#."). These

directives targeted errors or deviations from Johnson's aural image, and were different from other directive statements (e.g., "Let's start at measure 15."). Therefore, we decided to characterize directive statements as "general" or "critical" (see Glossary).

Because extant research on expertise in music teaching often describes the musical targets addressed during rehearsal frames, we chose to provide further data from these concentrated teaching units. Johnson verbalized 88 total targets during the 48 rehearsal frames; six began with an unidentified target (only one of which remained verbally targetless), and all rehearsal frames resulted in clear, audible change.

Figure 3.1: Rehearsal Frame Targets

Percentages and Frequencies of all Rehearsal Frame Targets as verbalized by Johnson.



Johnson often pursued multiple targets within a single frame; a total of ten frames began with a single target and ended with one or more additional goals. Of the 48 frames, 20 (41.66%) addressed a single target, 19 (39.58%) addressed two targets, 7 (14.58%) addressed three targets, one (2.08%) frame addressed 4 targets, and one frame (2.08%) addressed five targets. The

frequency with which Johnson verbally pursued specific musical targets (e.g., articulation) can be seen in figure 3.1.

DISCUSSION

This descriptive analysis of choral expertise revealed remarkable behavioral similarities to experts who exhibit different personal traits and teach a variety of instruments in different musical contexts. However, as noted in the review of literature, expertise cannot be solely identified, and thereby replicated, by the duration and frequency of rehearsal behaviors (e.g., Bergee, 2005; Goolsy, 1997, 1999); instead, a growing body of evidence points to a difference in the internal thought processes of experts, which can be observed through commonly exhibited rehearsal traits. Experts think differently than nonexperts do (Berliner, 1986; Standley & Madsen, 1991). Johnson, an expert choral conductor, used behaviors similar to other expert music instructors to efficiently improve ensemble performance (e.g., Duke & Simmons, 2006; Henninger, 2018; Yarbrough, 2002). This efficiency is the result of combining extensive musical and pedagogical content knowledge and a clear auditory image with intelligent predictions of performance (based on previous experience in similar contexts with similar performers), a responsive awareness, and a tenacious pursuit of proximal targets.

We did not expect to find all 19 elements observed by Duke and Simmons (2006) present in Johnson's rehearsals, believing that the contextual differences of instrumentation, ensemble setting, skill level, and brevity of the rehearsal cycle would limit the similarities between his rehearsal traits and those of the artist-teachers they studied. The analysis of Johnson's behaviors did reveal slight differences from the observations of other music experts.

There were four such instances of modifications, three of which were in the *Effecting Change* category: 1) *In general, the course of the music directs the lesson; errors in student performance elicit stops*, 2) *The teachers are tenacious in working to accomplish lesson targets having students repeat target passages until performance is accurate*, and 3) *Any flaws in fundamental technique are immediately addressed; no performance trials with incorrect technique are allowed to continue*. While an artist-instructor may have stopped a student's performance immediately to address a technical or musical mistake, Johnson often left individuals' errors unaddressed and instead stopped for mistakes that were made by an entire section or the ensemble. In addition, he typically chose musically intelligent places to halt and often stopped rehearsal frames one performance trial short of a perfect performance. We attribute these differences in behavior to the nature of both the professional and the group contexts. Perhaps Johnson assumed professionals were capable of addressing their mistakes and executing performance targets correctly during subsequent trials. Johnson may have chosen to stop in musically intelligent places so singers who did not make errors could benefit from completions of uninterrupted performance trials.

The final modification we made is indicative of a commonly described choral phenomenon: avoidance of delivering overt negative feedback in the singing context. We noted that Johnson often addressed errors with specific critical directives that implied a performance mistake. When we combined the number of specific negative feedback statements with critical directive verbalizations, Johnson's rate of critical verbalizations resembled that of Robert Shaw's—especially during Johnson's rehearsal frames. It is important to note that there are conflicting data about the ratio of positive to negative feedback used by experts, even within the

ensemble context (e.g., Cavitt, 2003; Worthy, 2003, 2006). This modification was noted under the fourth element in the *Conveying Information* category: *negative feedback is clear, pointed, frequent, and directed at very specific aspects of student's performances, especially the musical effects created.* Therefore, we attribute this difference in rehearsal traits to the current climate of singing instruction in the United States, in which instructors often avoid giving individual singers negative feedback (e.g., Morgan, 1992; Patterson, 2009).

The quantitative analyses of rehearsals, dress rehearsals, and rehearsal frames were meant to provide data as to how Johnson was improving performance in the professional choral context with specific repertoire. Similar to extant findings of expert music instructors, Johnson exclusively targeted musical elements during rehearsal frames and often addressed multiple targets in brief amounts of time. His instruction included high frequencies of accurate evaluations through the use of specific feedback and critical directives. Rehearsal frame data indicated a similar percentage of teacher activity and a slightly higher percentage of performance activity compared to those of expert instrumental instructors (Cavitt, 2003; Colprit, 2000; Worthy, 2003, 2006); this difference may be due in part to the brevity of Johnson's rehearsal cycle, and his tendency to address errors after the completion of phrases or sections.

The differences in methods of data collection between the current study and Yarbrough's (2002) analysis of Robert Shaw (i.e., data were limited to abbreviated portions of the first half of performance preparation) made statistical comparisons of expert choral conductor behavior impractical. However, it is important to note that both conductors were extremely efficient with their use of rehearsal time, exhibiting very few off-task behaviors, high levels of critical feedback and directives, and an extreme awareness of and adherence to effecting change.

This study was meant to expand our understanding of expertise in the choral setting. Although the body of research exploring expertise in music teaching remains relatively small, there are a number of observed similarities that continue to arise among the analyses of experts. Experts are extremely knowledgeable, proactive in targeting goals, and tenacious in their pursuit of student growth. The study of these, and other behavioral similarities observed in experts can provide teachers and teacher educators with greater insight about how to efficiently and effectively improve performance.

Chapter IV: Effects of Teacher's Verbalizations on Singers' Performance and Perception

Teachers' verbal feedback can be critical to the acquisition and refinement of complex procedural skills, as evidenced by the sheer number of studies that examine feedback in a multitude of instructional contexts (for a review, see Hattie & Timperley, 2007). In the music setting, teachers' verbal feedback is meant to provide information about student performance that guides learners' attention toward achieving instructional goals by maintaining adaptive component behaviors (e.g., recreating a beautiful phrase shape) and altering maladaptive behaviors (e.g., changing an incorrect vowel sound).

Verbal feedback functions to either evaluate or compare outcomes or behaviors (Koestner, Zuckerman, & Koestner, 1987), and is commonly classified using one of two dichotomies: positive or negative and specific or non-specific. Positive verbal feedback is intended to reinforce adaptive behaviors, whereas negative feedback is meant to diminish or change maladaptive behaviors. It is important to note that positive and negative feedback are not inherently paired with emotional connotations; they simply provide information that is meant to either reinforce or change behavior. Non-specific feedback provides a general evaluation of performance, while specific feedback provides learners with information regarding performance outcomes that they may not be sophisticated enough to generate on their own as they acquire new skills or refine complex skills. Overall research findings indicate that specific feedback is more effective in effecting change in learners' thinking and behavior than more general feedback (Hattie & Timperley, 2007; Kluger & DeNisi, 1996).

Feedback is also most effective when received immediately following a performance trial (Butler & Roediger, 2008). Teachers are more successful in reinforcing adaptive behaviors (i.e.,

delivering feedback contingently) when they approach complex instructional goals using a sequence of successive approximations that facilitate the speed and progression of learning (Duke & Madsen, 1991). Specific instructional targets and feedback focus students' attention advantageously as they get closer to achieving the end goal.

Researchers have characterized skillful teaching in part by their intelligent use of feedback. Compared with novices, experienced teachers deliver more negative than positive feedback, and they give more specific than non-specific feedback (Yarbrough & Price, 1989). Effective teachers deliver feedback more frequently and use more specific negative (Siebenaler, 1997) and specific positive (Goolsby, 1997) feedback than those who are rated as less effective. Additional studies have found that band conductors often use more specific negative than positive feedback when correcting errors (Cavitt 2003; Worthy & Thompson, 2009; Yarbrough & Price, 1989), a characteristic also seen in Robert Shaw's rehearsals of an auditioned adult choir (Yarbrough, 2002). However, many music teachers continue to avoid the use of specific negative feedback; instead, they use high rates of directives (i.e., verbal commands) to elicit change in student performance (Benson & Fung, 2004). Reasoning for a directive-only approach to instruction is typically grounded in the notion that negative feedback is psychologically detrimental to students.

Duke and Henninger (1998) decided to test this idea directly, hypothesizing that a students' sense of accomplishment in achieving a meaningful musical goal would negate any possible effects associated with receiving negative feedback. Twenty-five non-music major undergraduates and 25 fifth graders were taught by rote to play the theme from *Sesame Street* on recorder. Half of each age group received instructional directives and positive feedback, whereas the other half received specific negative and specific positive feedback; in all lessons, the instructor delivered

directives and negative feedback with neutral affect. The lesson was deemed complete when the participant was able to successfully play the song while being accompanied by the instructor. Following the lesson, each participant completed a survey regarding their enjoyment of the experience and the instructor. Results indicated no between-group differences in perceptions of either the experience or the instructor, and that successful accomplishment of a musical goal led to strong levels of self-efficacy and positive attitudes.

Duke and Henninger's study took place in an instrumental setting, a context in which teachers often deliver specific negative feedback (Cavitt, 2003; Worthy & Thompson, 2009; Yarbrough & Price, 1989). Choir directors, however, tend to use less negative feedback than instrumental directors (Yarbrough & Price, 1989) and often state that singing is perceived as a personal representation of self. Interviews with choristers suggest that singers are likely to experience extreme performance anxiety; even those who choose to sing in ensembles often battle fear and insecurity (Sweet, 2018). Interviews with self-identified (Swain & Bodkin-Allen, 2014; Whidden, 2009) and amateur choir members suggest that negative feedback has the potential to cause immediate, long-lasting, and sometimes traumatic aversions to singing. Choir directors and voice instructors often express their opinions regarding the function of negative feedback as undeniable fact; therefore, instead of effecting change quickly and efficiently with specific feedback, they often deliver non-specific praise for attempts, give directives only, or simply ignore errors for fear of alienating or offending students.

If the use of both positive and negative specific feedback is effective in the instrumental ensemble context, it stands to reason that a similar approach could elicit positive change in choral rehearsing, but as of yet, there are no studies that characterize choral teaching this way. In fact,

there are few experimental studies in choral research that attempt to identify instructional methods that improve singing in the ensemble context, and heretofore, there are no studies that directly compare the effect of different types of teacher verbalizations on student performance and perception.

Our aim is to explore the idea that singers may not be as sensitive to receiving negative feedback as some vocal teachers may believe. We hypothesize that if an instructor delivers negative feedback that is contingent, dispassionate, and part of an intelligent sequence of instruction that sets students up for success, singers will accomplish their goal and enjoy their experience. This purpose of this study is to explore whether receiving specific negative feedback as part of singing instruction will affect singers' perceptions of their musical experience, influence singers' perception of the instructor, and affect performance outcomes.

METHOD

Participants ($N = 48$)[5] were 24 (16 identified as females) fifth-graders enrolled at two public elementary schools and 24 (15 identified as females) undergraduates enrolled in music courses for non-majors at The University of Texas at Austin. The first author had previously-established professional relationships on both of the elementary school campuses we contacted, but the students were unknown to both authors. This study was approved by The University of Texas at Austin Institutional Review Board, and permissions were secured from the school board and campus administration overseeing both elementary school sites. Consent forms were signed by all

[5] Data were collected from 51 participants. One undergraduate student was excluded from analysis due to familiarity with the song, one elementary student's lesson did not record due to a technical malfunction, and one elementary student was excluded from the analysis because he was an outlier on all three performance variables (+3 SD).

undergraduates and parents of elementary volunteers, and all elementary students provided written ascent prior to participation (see Appendix D).

The first author, a certified choral music educator with 9 years of classroom experience, served as the instructor; lessons were taught individually in a large classroom at each school. The instructor briefly gathered information regarding demographics and musical experience (e.g., ensembles, private instruction) via a short questionnaire (see Appendix E) before the singing commenced, which also served to build a friendly rapport. Participants' pitch-matching ability and vocal range were assessed at the beginning of each individual lesson (see Appendix F); those unable to match pitch successfully in a variety of keys completed the lesson, but their data were not included in our analysis. Participants learned by rote *The Crawdad Song* (see Appendix F), a 16-measure folk melody chosen for the ease (e.g., range, tempo, character) with which it could be sung by both age groups and the fun character of the song. Both the song and protocol were piloted with four nonparticipants (age range: 10-62 years). Lessons were deemed complete when participants were able to sing the song independently and musically (i.e., with good tone, intonation, dynamics, phrasing, and articulation) while the instructor accompanied on guitar.

Elementary (E) and undergraduate (U) participants were randomly assigned to one of two teacher verbalization conditions: directive only (DO) or negative feedback (NF) (E-DO, n=11; E-NF, n=13; U-DO, n=12; U-NF, n=12). In the DO condition, the instructor addressed mistakes and corrections by providing singers with directives regarding what participants needed to do differently (e.g., "Sing higher on the word 'line.'"). In the NF condition, the instructor first provided qualitative assessments of identified errors (i.e., specific negative feedback), and followed up with a vocal model or verbal directive that described what they should do differently

in the next performance trial (e.g., "You sang the word 'line' too low. [Instructor model] Try again."). Other than the two methods of delivering verbalizations, the instructor did not alter mannerism, the amount and type of contingent positive feedback given, and the general enthusiasm with which she taught.

After the lesson, participants completed a survey regarding their enjoyment of the singing experience and their perceptions of the instructor (see Appendix G). Each lesson was video- or audio- recorded and analyzed using Scribe 4 software (Duke & Stammen, 2011). Inter-reliability of the performance data (i.e., means for teacher verbalizations and performance measures) for 25% of the recordings was 0.87 between the first author and an independent observer who was a certified music teacher in the state of Texas. Comparisons of performance data were completed using two-way analyses of variance (ANOVAs, Age Group by Verbalization Condition); all appropriate post hoc tests used Student's *t*. Initial results suggested the analysis of two additional measures of performance: the number of participants in each group who initiated performance stops (labeled self-initiated stops) and verbalized self-assessments (labeled self-initiated assessments).

RESULTS

Prior to the start of each lesson, participants answered general questions related to singing: 95.83% of all participants reported that they enjoy singing and an equal percentage reported singing when alone. In addition, we collected data related to participants' prior music experiences (summarized in Table 4.1).

Table 4.1: Participants' Prior Music Experiences

Participants' prior Music Experiences by age group and verbalization condition, expressed as a percentage of each group's responses.

	Elementary		Undergraduate	
Musical Experience	DO	NF	DO	NF
General Music	100	100	91.67	83.33
Any Ensemble Experience	72.73	92.31	83.33	100
Choral Ensemble Experience	27.27	30.77	25.00	33.33
Instrumental Experience	63.64	69.23	91.67	91.67
Private Vocal Instruction	0	0	25.00	25.00

As expected with the age-group range represented in our participant population, the older undergraduate students had the most instrumental experience and private singing lessons; otherwise, results were relatively similar—most participants reported engaging in general music and ensemble experiences, whereas a lower number of participants sang in choir.

Comparisons of means for teacher verbalizations, student performance measures, and survey question ratings were completed using two-way analyses of variance (ANOVAs, Age Group by Verbalization Condition); all appropriate post hoc tests used Student's *t.* Because we observed significant differences in mean lesson length (described in more detail below) that would confound between-group comparisons of teacher verbalization frequency data (i.e., greater length provides greater opportunity), we chose to express these data in terms of rate per minute (RPM), which is presented in Table 4.2.

Table 4.2: Teacher Verbalizations

Rate Per Minute (RPM) Means for Teacher Verbalizations of Positive Feedback, Negative Feedback, and Directives by Age Group and Verbalization Condition.

Teacher Verbalizations	Elementary		Undergraduate	
	DO	NF	DO	NF
Positive Feedback	4.22 (0.68)	3.61 (0.56)	3.70 (0.72)	3.70 (0.43)
Negative Feedback	0.07 (0.08)	0.94 (0.26)	0.13 (0.14)	0.96 (0.27)
Directives	4.03 (0.60)	3.60 (0.67)	3.55 (0.57)	3.11 (0.37)

Note. Standard Deviations (SD) are indicated with parentheses.

The analysis of teacher verbalizations revealed no between-group differences in the way the instructor delivered positive feedback, but for directive RPM means, there were significant main effects for Age Group ($F(1, 44) = 10.72$, $p = .002$, $\eta 2 = .196$) and Verbalization Condition ($F(1, 44) = 5.66$, $p = .022$, $\eta 2 = .114$), with no significant interaction. Elementary students received more directives per minute than did undergraduates, and the NF groups received fewer directives per minute than did the DO groups. As a follow up to the between-group differences in directive RPM means, we considered summary statistics from our SCRIBE analysis, noting that the mean duration for both teacher and student behavior was shortest for the elementary participants and the NF groups, indicating that teacher-student exchanges tended to be more brief and frequent in both cases. Negative feedback means confirm the presence of experimental differences intended by the Verbalization Condition manipulation.

The analysis of primary performance behaviors (presented in table 4.3) revealed no significant differences in mean lesson duration between elementary and undergraduate students, a significant main effect for Verbalization Condition, ($F(1, 44) = 6.44$, $p < .02$, $\eta 2 = .128$), and a

significant interaction, ($F(1,44) = 8.13$, $p < .007$, $\eta 2 = .156$). The DO groups reached performance criteria significantly faster than the NF groups. Pairwise comparisons using Student's *t* revealed that mean lesson duration for the undergraduate DO group was significantly shorter than the mean duration for the other three groups (U-NF, $p < .001$; E-DO: $p = .006$; E-NF: $p < .008$), which were not significantly different from each other.

Table 4.3: Lesson Behaviors

Mean Lesson Duration and Mean Frequencies for Performance Trials, Self-initiated Stops, and Self-initiated Assessments by Age Group and Verbalization Condition.

	Elementary		Undergraduate	
Behaviors	DO	NF	DO	NF
Lesson Duration (sec)	788.04 (192.96)	771.88 (194.91)	572.42 (113.13)	851.28 (200.03)
Performance Trials	77.27 (27.49)	71.92 (22.26)	40.25 (9.50)	69.17 (15.20)
Self-initiated Stops	3.18 (3.25)	4.38 (3.55)	2.08 (2.97)	5.17 (4.47)
Self-initiated Assessments	1.45 (1.92)	1.46 (2.03)	2.33 (2.35)	4.42 (2.87)

Note. Standard Deviations (SD) are indicated with parentheses.

The analysis of the number of performance trials required to reach the established criteria revealed significant main effects for both Age Group ($F(1,44) = 12.22$, $p = .001$, $\eta 2 = .217$) and Verbalization Condition ($F(1,44) = 4.29$, $p = .044$, $\eta 2 = .089$), as well as a significant interaction ($F(1,44) = 9.07$, $p = .004$, $\eta 2 = .171$). Elementary students required more performance trials to reach criteria than did undergraduates, and the NF groups required a greater number of performance trials compared to the DO groups. Pairwise comparisons showed that the U-DO group

required significantly fewer performance trials than did the other three groups (U-NF, $p < .001$; E-DO: $p < .001$; E-NF: $p < .001$), which were not significantly different from each other.

During the initial systematic analysis of the lesson recordings, we observed two unexpected behaviors in our participants, both of which were unsolicited and typically took place before the instructor spoke: self-initiated performance stops and self-assessing verbalizations (e.g., "I didn't go high enough [for that note]"). These observations instigated the post hoc decision to count the number of participants in each group who demonstrated these behaviors. A chi-square analysis of self-initiated stops indicated no significant difference between Age Groups [$x^2(1, n = 48) = 0.00$, $p = 1.000$], and a significant difference between Verbalization Conditions [$x^2(1, n = 48) = 5.47$, $p = 0.019$]. Regardless of age, participants in the NF groups were significantly more likely to stop their own performance than were those in the DO groups. Chi-square analysis of self-initiated assessments revealed a significant difference between Age Groups [$x^2(1, n = 48) = 8.268$, $p = 0.004$], but not between Verbalization Conditions [$x^2(1, n = 48) = 0.014$, $p = 0.907$]. Undergraduates were more likely to make self-initiated assessments than were elementary students.

Table 4.4 presents mean ratings for each of the post-lesson survey statements, which indicate that participants were quite positive about their musical experience. An analysis of mean responses found significant differences in only one of eleven statements. Comparisons of mean ratings for the statement, "I found the melody difficult to learn," yielded no main effect for Age Group, a significant main effect for Verbalization Condition ($F(1,44) = 4.69$, $p = .036$, $\eta 2 = .096$), and no interaction. The NF groups' mean was higher than the DO groups' mean; both means were approximately one-quarter point on either side of the rating that indicates disagreement.

Table 4.4: Perceptual Results

Mean Ratings for Perception Survey by Age Group and Verbalization Condition.

	Elementary		Undergraduate	
Prompt	DO	NF	DO	NF
1. I enjoyed learning to sing the melody today.	3.82 (0.39)	3.62 (0.62)	3.75 (0.43)	3.69 (0.40)
2. I found the melody difficult to learn.	1.73 (0.45)	2.23 (0.89)	1.75 (0.60)	2.15 (0.51)
3. I would like to continue learning the song.	3.45 (0.66)	3.46 (0.75)	3.27 (0.86)	3.62 (0.60)
4. This lesson was a negative experience.	1.18 (0.39)	1.46 (0.84)	1.08 (0.28)	1.00 (0.00)
5. Singing this melody was easy.	3.00 (0.85)	2.92 (0.83)	3.25 (0.60)	2.77 (0.55)
6. I got bored singing today.	1.40 (0.92)	1.38 (0.74)	1.25 (0.43)	1.15 (0.35)
7. I now feel confident about singing the song I learned today.	3.55 (0.66)	3.38 (0.84)	3.33 (0.47)	3.46 (0.48)
8. The teacher was helpful.	3.64 (0.88)	3.92 (0.27)	4.00 (0.00)	4.00 (0.00)
9. I was frustrated during the lesson.	1.09 (0.29)	1.38 (0.62)	1.33 (0.62)	1.54 (0.72)
10. Singing is fun.	3.91 (0.29)	3.69 (0.21)	3.75 (0.43)	4.00 (0.00)
11. The teacher was encouraging and positive.	4.00 (0.00)	3.92 (0.27)	4.00 (0.00)	4.00 (0.00)

Note. Response options were Strongly Disagree (1), Disagree (2), Agree (3), and Strongly Agree (4). Standard Deviations (SD) are indicated with parentheses.

DISCUSSION

Consistent with the findings of Duke and Henninger (1998), our post-lesson survey results indicated that participants reported having a positive singing experience regardless of their verbalization condition assignment. Overall, these data support the idea that the achievement of musical success becomes salient in the mind of learners and negates possible effects of teacher verbalizations; this contradicts the anecdotal belief that singers may not respond well to negative feedback. Singers can achieve success and still enjoy their experience if instructors deliver negative feedback as part of an intelligent sequence of instruction that facilitates goal achievement.

The observation that fifth-grade students received significantly more directives than undergraduates is inextricably linked to the significantly higher number of performance trials elementary students performed in comparison to the older students, as directives preceded most performance trials. Interestingly, the elementary groups' lesson duration means were not significantly longer than the U-NF group's mean; in other words, compared to the U-NF group, the elementary students did not require more time to achieve performance criteria, but they did perform more repetitions. The shorter mean duration of teacher and student activity indicated that the significant differences in directive RPM means are likely attributable to the brevity of teacher-student exchanges in the elementary groups; the instructor chose to differentiate instruction by creating smaller, more achievable targets for the younger participants.

The fact that the U-DO group outperformed the other groups (i.e., reaching performance criteria faster and with fewer performance trials) was surprising and inconsistent with the findings of Duke and Henninger (1998), who reported no significant differences between verbalization conditions by age group. Our data do not clarify the extent to which these results are attributable to between-group differences in undergraduates' singing skill, teacher verbalization frequency

(recall that the U-DO group did not receive negative feedback), or are simply the result of sampling error. Although our U-DO group's lesson duration mean was considerably shorter than that of both elementary groups, the U-NF group's duration mean was more in line with the elementary groups' mean duration, as evidenced by the significant interaction.

Another potential explanation for the performance differences between the two undergraduate groups could be the prominence of self-assessing behaviors exhibited by participants in the U-NF group. While both undergraduate groups were equally likely to offer verbal self-assessments, all of the U-NF participants demonstrated this behavior, compared to only seven of the 12 participants in the U-DO condition. This, coupled with the fact that the U-NF participants required more performance trials to reach criteria, may indicate that the instructor subconsciously responded to these self-assessing behaviors by allowing participants to perform additional trials to resolve the issues they identified and reinforce the correction.

The most intriguing finding in this study was that participants who received negative feedback were significantly more likely to initiate performance stops. As many of these self-initiated stops were not paired with a verbalization, we are left to speculate about participants' reasoning; however, this behavior suggests that participants experienced some sort of dissatisfaction with their performance. This kind of self-assessing behavior is integral to the development of musical independence and maturity, and the observation that elementary students who received negative feedback were equally as likely as the more developmentally mature undergraduates to engage in this behavior after only a brief period of instruction is a promising finding. It was unsurprising that undergraduates were significantly more likely to offer verbal self-assessments than the elementary

students, given the advanced state of undergraduates' cognitive development and the likelihood that years of school experiences have required them to think and speak critically about their work.

In conclusion, our results suggest that a directive-only method of instruction may be most efficient in terms of short-term goal achievement. However, the cost of this form of instruction is that students may take longer to develop self-assessment behaviors that are a critical part of independent musicianship. If students are not provided with specific feedback that lays the foundation for the development of self-assessment skills, they may be less likely to become lifelong musicians who will persist in music making beyond their primary and secondary schooling.

It is important to note that the instructional goal of singing this folk song was fun and attainable, and that negative feedback was specific, neutral in affect, and pertained to achievable short-term goals. These aspects of instruction were deliberate and reflected practices that have been supported by researchers and practitioners for decades (e.g., Duke, 2015; Duke & Henninger, 1998; Duke & Simmons, 2006; Fernández-Toro & Hurd, 2014; Ormrod, 2014; Ryan & Deci, 2000). Even participants who initially struggled to find a tonal center were able to be guided carefully toward success more often than not, as evidenced by the exclusion of only seven elementary students (out of 31 volunteers). In a relatively short time, all participants were able to sing the song accurately and in the appropriate style with guitar accompaniment.

Limitations to this study include self-selection (i.e., a majority of volunteers reported enjoying singing prior to participation) and a relatively small sample size, but a notable strength is its comparison of elementary-age participants with undergraduates (a more commonly studied participant population in music research). The data analyzed in this study examined the perceptual

and performance outcomes of singers in an individualized context, and therefore cannot account for the variety of social and emotional agencies that are present and undoubtedly influential in the choral ensemble setting (e.g., Bonshor, 2017; Schmidt, 1995; Stamer, 2009; Taylor, 1997). The positive results obtained in this investigation prime our continued interest in exploring these ideas with choirs.

This study enhances our understanding of the effect of teacher verbalizations on singers' perceptions and performances by disputing the notion that negative feedback has inherently detrimental psychological effects on singers. Future research should examine how a conductor's use of strategic, specific negative feedback functions in the choral context, and whether the use of specific negative feedback increases students' self-assessing behaviors that foster independent learning.

Chapter V: Discussion

There are many variables that contribute to a teachers' ability to effect change in student performance. The independent acquisition and refinement of any performance skill requires an ability to correctly perceive performance outcomes (i.e., feedback), discern imperfections, and accurately diagnose contributing factors (e.g., Fernández-Toro & Hurd, 2014). While expert feedback can be constructive for individuals at all skill levels, those who are less likely to perceive, discern, and diagnose their own performance outcomes (i.e., beginners and intermediates) stand to benefit the most (Vygotsky, 1978; Wood, Bruner, & Ross, 2006). However, current practices within the choral ensemble setting often limit or preclude the use of individual and small group performance (Derby, 2001; Fiocca, 1986), thereby limiting opportunities for individuals to receive specific, critical feedback that could teach them how to listen to their own performances more skillfully.

The results of Chapters 3 and 4 are consistent with a growing body of literature that supports the idea that addressing errors through the use of specific feedback that includes both positive and negative performance assessments can decreases negative emotions and task avoidance, and focus attention toward learning (e.g., Fong et al., 2018; Frese & Keith, 2015). Interestingly, these positive outcomes can be achieved without negatively impacting student attitudes and their overall perceptions of their musical experiences.

The 24-year survey of peer-reviewed choral education research presented in Chapter 2 revealed a dearth of studies that examined the effects of instructional techniques on performance outcomes. While extant research has measured the physical, acoustical, and perceptual effects of many variables, including conductor expression, gesture, and verbalizations, researchers have yet

to describe how choral conductors improve ensemble performance across a rehearsal cycle. Furthermore, peer-reviewed research remains void of experimental methods meant to examine the effects of instructional techniques on the acquisition of singing. The two studies designed for this dissertation examined these topics by providing descriptions of how an expert effected change in his ensemble's performance across an entire rehearsal cycle (Chapter 3) and how a skilled instructor's use of negative feedback impacted the perceptions and performance outcomes of singers (Chapter 4).

Understanding how experts elicit change and growth can help teachers plan and implement more effective curriculum and instruction (Bereiter & Scardamalia, 1993; Berliner, 1994). Delving into the function of feedback in singing instruction can inform teachers' choices of verbal and performance behaviors during both group and individual instruction. The following discussion will describe the implications and applications of the findings presented in Chapters 3 and 4 and will conclude with the limitations of our findings and suggestions for future inquiries.

EXPERT CHORAL REHEARSING: IMPLICATIONS AND APPLICATIONS

The observation and analysis of Craig Hella Johnson, an expert choral conductor, presented in Chapter 4 revealed similar rehearsal traits and behaviors to those of expert applied instrumental instructors (e.g., Duke & Simmons, 2006) and conductors in instrumental contexts (e.g., Cavitt, 2003; Worthy, 2003). Furthermore, Johnson exhibited behaviors that were similar to those of Robert Shaw, the only other expert professional choral conductor whose behaviors have been analyzed and published (Yarbrough, 2002). These behavioral similarities existed despite differences in repertoire, ensemble size, and personality. These parallels imply that the rehearsal

traits and behaviors needed to effect positive change in music performance are universal and can be adapted to the majority of settings and contexts.

Expert music instruction begins well before the downbeat of a rehearsal, and reflects the general characteristics of teaching expertise (e.g., Bereiter & Scardamalia, 1993; Berliner, 1994; Duke, 2015). It requires the long- and short-term evaluative planning process in which a teacher assesses the current technical and musical capabilities of an ensemble and the timeline in which specific skill acquisition and refinement can occur. The results of this ongoing process enable the teacher to set both proximal and distal goals and expectations, which, in turn, inform intelligent selections of repertoire. Choosing music that is well within an ensemble's technical capabilities serves multiple purposes: it increases the potential for successful performances, encourages singers to focus their attention on the sound they are producing, and allows predominant instruction to remain on overarching musical and technical goals. In essence, repertoire selection directly impacts the nature of rehearsal, musicians' performance, and overall success in goal achievement.

Another critical component in the rehearsal planning process is the development of auditory images. This understanding goes beyond knowing the pitches and rhythms of every part; it requires the director to hear every aspect (e.g., expression, diction, breath, dynamic) of an imagined ideal performance. Perhaps it is this preparatory element that allows experts to be so efficient in their ability to effect change in performance. Experts are extremely adept at creating accurate and clear auditory images, even when preparing unknown scores. They draw upon a combination of prior knowledge, experience with similar literature, and score study to craft their auditory image upon which all technical and musical performance trials will be evaluated (e.g., Bergee, 2005; Duke & Simmons, 2006; Stanley, 2018). The ability to constantly compare current

and ideal performances increases their accuracy in error detection and allows them to make fine discriminations, which can facilitate efficient pacing and specificity in feedback and directives.

During the rehearsal process, experts continue to draw upon their auditory image as they set technically and musically important proximal goals that move both individuals and ensemble members toward the ideal sound. While the effective structuring of goals requires pedagogical skill that take years of dedication to hone (Bereiter & Scardamalia, 1993; Berliner, 1994, 2001), being able to hear and pursue ideal performance can allow directors of all ability levels to focus on selecting small, achievable goals that result in audible change. The tenacity that is required to attain such a performance will inevitably require the isolation of small groups or individuals.

Unlike evidence observed in the instrumental context (e.g., Cavitt, 2003; Worthy, 2003), extant choral research implies that teachers often avoid or limit small group and individual performance opportunities, thereby removing opportunities to deliver specific feedback to individuals (e.g., Derby, 2001). However, Johnson did not display an aversion to small group performance or to delivering critical feedback and directives to small groups and individuals; indeed, well over half of his rehearsal frames included the isolation of small groups, and his combined rate of negative feedback and critical directives nearly doubled the rate of positive feedback. These data more closely reflect the behavioral tendencies observed in expert instrumental teachers and conductors. Choir directors must be willing to isolate small groups in rehearsal—it allows both the singers and the director to hear and address musical and technical errors. This strategy also gives singers the opportunity to receive specific feedback that can help refine their listening and singing skills and to practice their own error detection and correction skills.

Although Johnson often used brief and kind-hearted statements of appreciation (e.g., "Thank you.") at the end of performance trials, he—like other music experts (e.g., Montemeyer, 2016)—was reserved in his use of specific positive feedback. Johnson demonstrated how choir directors can be encouraging without exaggerating success. When teachers limit their use of positive feedback and praise to situations in which it is truly warranted, students will be more apt to accurately gauge their improvement and to attribute successes to behaviors that truly instantiated positive change (Bonshor, 2017).

It is important to discuss a few differences between Johnson's behaviors and the observations made by Duke and Simmons (2006), the majority of which are attributable to the ensemble context. Unlike the artist-instructors who immediately halted the musical performance of individuals to address errors, Johnson would often stop in musically intelligent places. By choosing to address errors at the end of a phrase, teachers can give individuals who are having a successful performance trial the ability to complete phrases in a way that is more authentic. Additionally, Johnson would often allow singers the opportunity to address their own mistakes while he attended to errors that were indicative of section-wide problems. Teaching singers to listen for and acknowledge their own mistakes (e.g., make a gesture of acknowledgment, mark music) can lead to more efficient rehearsal practices. Singer error detection and acknowledgment can cultivate independence and engender a cooperative environment while informing directors of both the sources of errors and singers' self-assessment capabilities.

Like the artist-instructors described by Duke and Simmons (2006), Johnson improved ensemble performance by demanding a consistent sound from all of the singers in his ensemble and by tenaciously pursing his auditory image. He often modeled or explained the purpose of his

technical feedback (e.g., how it impacted sound or create an interpretive effect), which gave singers insight regarding his end goal. However, Johnson did not dedicate time to the improvement of individual ensemble members' musical and technical abilities. Furthermore, apart from a few instances in which individual singers made suggestions, there was little collaborative decision-making; Johnson was firmly in control of interpretive choices made during rehearsals. Often times, the expertise of the singers allowed Johnson to "play" the ensemble as though he were playing an instrument. These behaviors might be attributable to the brevity and nature of the rehearsal cycle, which culminated in a three-day performance tour. Simply put, Johnson's purpose was to ready a professional ensemble for imminent performance.

The vast majority of choirs, though, are situated in academic settings and are led by directors who are charged with refining the skills of developing singers while maintaining a performance schedule (e.g., Kuehne, 2007). Teachers are expected to demonstrate students' vocal growth through group performance (e.g., Kotora, 2005). Johnson's task, to present a beautiful performance of past and new repertoire in a short amount of time with a group of professional musicians, was quite different from that. These differences may raise questions about the feasibility of directly applying Johnson's behaviors in secondary choral ensemble practice, but there are many aspects of his work that are able to be modified and applied to any given situation.

In order to effect ensemble improvement at a rate and breadth similar to Johnson—albeit at a different level—choir directors must train their ensemble members to think and behave independently. The average choir member, whose only vocal training has occurred in the group context, tends to lack both the ability and opportunity to independently change her own performance. This deficiency can be perpetuated by teachers' avoidance of giving individualized

feedback in individual and small group performance opportunities (e.g., Bonshor, 2017; Sweet, 2018). However, if singers are to gain independence, they must be given the opportunity to hear themselves clearly and receive individualized feedback that has the potential to teach them how to listen. Research from other domains (e.g., Fong et al., 2018; Frese & Keith, 2015) supports the idea that when teachers routinely address individual or small group performance errors with brief interactions (i.e., rehearsal frames) that result in audible change, students can benefit from both the changes that occur in the moment and the overall experience of how change was made in their own singing.

Teachers can augment the effectiveness of such interventions by structuring interactions that increasingly put the onus of discernment, diagnosis, and change on the students themselves. However, in order to create such collaborative learning environments that promote singer independence and agency, teachers must utilize individual and small group performances that are paired with specific feedback. Perhaps, as choir members gain confidence in their ability to detect errors and effect change in their own singing, teachers can direct more focus and time toward achieving ideal ensemble sounds, even teaching beyond technique by including students in the process of interpreting repertoire. By improving the cognitive and behavioral skills of individual members, choir directors can accelerate and amplify an ensemble's growth.

USING NEGATIVE FEEDBACK: IMPLICATIONS AND APPLICATIONS

Informal observation of and conversation with choir directors has revealed a tendency toward avoiding the use of negative feedback with individual singers when addressing technical or musical errors in the ensemble setting; many teachers consider its use to be psychologically damaging or offensive to singers. While we found no studies examining the topic directly, there is

evidence that secondary choir directors tend to use fewer small group and individual performance opportunities than do instrumental directors in rehearsals (e.g., Cavitt, 2003 vs. Derby, 2001; Fiocca, 1986), which naturally decreases their ability to address individual singers' errors.

The results of Chapter 4 indicated participants were positive about their singing experience regardless of the verbalization condition they were assigned to; in other words, receiving negative feedback as part of an intelligent sequence of instruction did not negatively affect participants' perceptions of the experience or the instructor. Participants in the NF condition tended to rate the prompt "This melody was difficult to learn" significantly higher than those in the DO condition. These slight mean differences indicate that those in the NF groups felt slightly more challenged than their peers in the DO groups, which is not inherently bad. In fact, research has demonstrated that when given options, people who are intrinsically motivated tend to prefer more challenging tasks (e.g., Pittman, Emery, & Boggiano, 1982). If teachers want to promote learning and independence, a sense of challenge should not only be expected by students, but appreciated.

The very nature of negative feedback forces people to attend to an inability to perform a target correctly (Frese & Keith, 2015); in other words, it prompts students to self-reflect and evaluate their own performance. While instructors' use of directives prompts students to focus attention toward specific tasks, it does not necessarily initiate the same evaluative cognitive response from them. It can be assumed that self-initiated performance trial stops occur when students hear, think, or feel something that is incongruent to predictions of their performance outcomes. The significantly higher percentage of participants that exhibited self-initiated stopping behaviors in the NF groups suggest that the teacher's use of negative feedback initiated more self-assessment—in this case, we infer that students became more personally dissatisfied. Self-

evaluation can serve to inform student questions, behavior, and future performance outcome predictions—the evaluative behaviors that can increase independence in skill acquisition and refinement (Fernández-Toro & Hurd, 2014).

These findings contribute to existing evidence that teachers' use of verbalizations, including specific feedback, can impact learning outcomes (e.g., Creech, 2012; Fernández-Toro & Hurd, 2014; Hamilton, 2017. Our results suggest that the use of directives, even when overtly critical in nature, may not generate the same extent of student self-assessment behavior. When teachers use specific negative feedback, they are providing students with an external qualitative evaluation of a past performance. Even if the feedback is paired with directives, students may be more apt to make independent predictions or pay attention to how behavior change affects future performance outcomes; in other words, students will be better primed to learn (Creech, 2012; Duke, 2015; Fernández-Toro & Hurd, 2014; Hamilton, 2017).

Research does support the idea that initial interactions between a teacher and student should include high rates of specific and contingent positive feedback, which establishes rapport and allows self-efficacy to grow (Bonshor, 2017). Indeed, praise (i.e., positive feedback delivered with emotion) and positive feedback are typically more beneficial than criticism for individuals who experience more failure than success (Brophy, 1981; Finkelstein & Fishbach, 2012). However, once a positive relationship has been established and students have achieved and experienced multiple successes with the use of directives, the introduction and subsequent use of specific negative feedback—that should pertain only to targets in which positive change can quickly occur (Duke, 2015; Fernández-Toro & Hurd, 2014)—can instigate a shift in how students attend to both the task and instructor feedback (Duke & Henninger, 1998; Fong et al., 2018). As

individuals start attending to behavioral outcomes and acquire the ability to make better predictions, teacher feedback (both positive and negative) can start to function as an external tool in which students are able to gauge the accuracy of their own perceptions (Fernández-Toro & Hurd, 2014; Hamilton, 2017). The lesson then becomes a collaborative endeavor in which singers are more likely to become intrinsically motivated and seek out negative feedback that can help them continue to hone their skills (Finkelstein & Fishback, 2012).

Specific negative feedback can be used as an extremely powerful tool; when delivered effectively, it has the potential to positively impact learning in a way that is functionally different from the instructional use of directives alone (Fong et al., 2018). Research indicates that individuals often want to receive both negative and positive feedback that can aid in positive growth (Dunn, 1997; Finkelstein & Fishback, 2012). Teachers should utilize specific negative feedback to address errors that can be corrected with a modest amount of student effort in a short amount of time (Duke, 2015), thereby allowing students the natural opportunity to make outcome predictions and to experience both failure and success in performance. These guided opportunities, which should always end in positive audible change, will allow students to form accurate associations of behaviors and outcomes while cultivating the evaluative behaviors required to independently learn and refine skills.

FUTURE INQUIRIES & CONCLUSION

The purpose of the research presented in this dissertation was to explore basic principles of human learning in the choral setting. We have done so using a variety of research methods, albeit with limited participant populations. While the study of Craig Hella Johnson revealed patterns of behaviors and traits that reflected those of experts in the instrumental setting, the results

of Chapter 3 are limited to the rehearsal practices of a single conductor. By continuing to expand the body of research that examines expert behavior, researchers could be afforded the opportunity to observe practices that consistently contribute to positive performance outcomes (Berliner, 1986, 1994).

However, the study of expert behavior alone does not complete the picture of human learning in the choral setting, nor does the direct application of expert rehearsal behaviors guarantee positive ensemble change, as witnessed in the work of novice instrumental teachers who exhibit some behaviors that are consistent with experts in their field, but with mixed results (Bergee, 2005; Goolsby 1997; 1999). Therefore, future research should include examination of relationships between expert thought processes (i.e., how they direct their attention) and behaviors (i.e., how they select targets and ultimately go about improving ensemble performance), experimental procedures that compare the effects of different instructional techniques, and obtaining ensemble members' perceptions of an expert's work.

Such was the intent behind the experimental design of the study in Chapter 4. Although the design used a relatively small number of participants (N = 48), the results provide powerful evidence that the use of specific negative feedback can be a positive tool for singing instructors. It should be noted that research indicates the function of negative feedback can be influenced by contextual factors (e.g., motivation, self-efficacy, and self-concept Bandura & Jourden, 1991; social context, Bonshor, 2017; Frese & Keith, 2015). Therefore, future methods should examine the effects of specific negative feedback delivered to both individuals and small groups in the ensemble context. Examining factors that influence student learning can contribute to productive instructional choices, and our finding that the use of specific negative feedback did not inherently

cause distress or damage to singers in the individualized context supports its inclusion as part of an intelligent sequence of instruction. When used intelligently, specific negative feedback can promote evaluative behaviors that are needed to gain independence in skill acquisition and refinement, which is most certainly a characteristic of human learning we should develop in our students.

Appendices

APPENDIX A: CHAPTER III NUMBER OF CITATIONS BY CATEGORY

Category		Subcategory		Primary	Cross List
1.	Curriculum & Materials (26)	a)	Comprehensive Curricula & Evaluation	4	3
		b)	Choral Literature	5	0
		c)	Sight-Singing	12	1
		d)	Instructional Materials	0	5
		e)	Descriptive Studies	5	1
2.	Teacher/Conductor Behavior (18)	a)	Verbal Behavior	3	5
		b)	Time Use	6	4
		c)	Teaching Style & Class Environment	1	4
		d)	Teacher Effects on Student Behavior	7	8
		e)	Miscellaneous Descriptive Studies	1	8
3.	Teaching Methods/Techniques (15)	a)	Rehearsal Organization	1	1
		b)	Effects of Specific Techniques	8	6
		c)	Singing Formations	5	1
		d)	Movement	1	1
4.	Teacher Education (49)	a)	Comprehensive Studies	6	2
		b)	Choral Teaching Techniques	3	8
		c)	Error Detection	4	1
		d)	General Teaching Techniques	9	9
		e)	Perception & Self-Reflection	23	11
		f)	Preservice Social/Identity	4	3
5.	Student Characteristics (64)	a)	Social & Personal Characteristics	10	9
		b)	Perceptions & Ratings	42	30
		c)	Behavior	3	1
		d)	Enrollment	9	9
6.	Miscellaneous (21)	a)	Vocal Health	12	1
		b)	Contest & Festivals	3	4
		c)	Other Studies	6	3

APPENDIX B: CHAPTER II CITATIONS BY CATEGORY (WITH CROSS-LISTINGS)

Category 1. Curriculum & Materials Category

Citation	Subcategory	Cross Listing[6]
Hamann, K. L. (2007). Influence on the curriculum choices of middle school choir teachers. *UPDATE: Applications of Research in Music Education*, *26*(1), 64–74.	Comprehensive Curricula & Evaluation (A)	1D
Kotora, E. J. (2005). Assessment Practices in the Choral Music Classroom: A Survey of Ohio High School Choral Music Teachers and College Choral Methods Professors. *Contributions to Music Education, 32*(2), 65–80.	Comprehensive Curricula & Evaluation (A)	
Parkes, K. A., Rohwer, D., & Davison, D. (2015). measuring student music growth with blind-reviewed portfolios: A pilot study. *Bulletin of the Council for Research in Music Education*, (203), 23–44. https://doi.org/10.5406/bulcouresmusedu.203.0023	Comprehensive Curricula & Evaluation (A)	4A
Sindberg, L. K. (2016). Elements of a successful professional learning community for music teachers using comprehensive musicianship through performance. *Journal of Research in Music Education*, *64*(2), 202–219. https://doi.org/10.1177/0022429416648945	Comprehensive Curricula & Evaluation (A)	
Baker, V. D. (2018). A gender analysis of composers and arrangers of middle and high school choral literature on a state-mandated list. *International Journal of Research in Choral Singing, 6*, 25–40.	Choral Literature (B)	
Baker, W. R. (2011). An analysis of vocal jazz repertoire by three selected publishing companies. *Update: Applications of Research in Music Education*, *30*(1), 54–63. https://doi.org/10.1177/8755123311418625	Choral Literature (B)	
Cranmore, J., & Fossey, R. (2014). Religious music, the public schools, and the establishment clause: A review of federal case law. *Update: Applications of Research in Music Education*, *33*(1), 31–35. https://doi.org/10.1177/8755123314540663	Choral Literature (B)	

[6]Cross Listing category references may be found in Appendix A.

Category 1. Curriculum & Materials Category Continued

Citation	Subcategory	Cross Listing
Forbes, G. W. (2001). The repertoire selection practices of high school choral directors. *Journal of Research in Music Education*, *49*(2), 102–121. https://doi.org/10.2307/3345863	Choral Literature (B)	2E
Reames, R. R. (2001). High school choral directors' description of appropriate literature for beginning high school choirs. *Journal of Research in Music Education*, *49*(2), 122–135. https://doi.org/10.2307/3345864	Choral Literature (B)	2E
Demorest, S. M. (2004). Choral sight-singing practices: Revisiting a web-based survey. *International Journal of Research in Choral Singing*, *2*(1), 3–10.	Sight-Singing (C)	4B
Demorest, S. M. (1998). Improving sight-singing performance in the choral ensemble: The effect of individual testing. *Journal of Research in Music Education*, *46*(2), 182–192. https://doi.org/10.2307/3345622	Sight-Singing (C)	
Demorest, S. M., & May, W. V. (1995). Sight-singing instruction in the choral ensemble: Factors related to individual performance. *Journal of Research in Music Education*, *43*(2), 156–167. https://doi.org/10.2307/3345676	Sight-Singing (C)	3D
Floyd, E., & Bradley, K. D. (2006). Teaching strategies related to successful sight-singing in Kentucky choral ensembles. *UPDATE: Applications of Research in Music Education*, *25*(1), 70–81.	Sight-Singing (C)	1D
Henry, M. L. (2008). The use of specific practice and performance strategies in sight-singing Instruction. *Update: Applications of Research in Music Education*, *26*(2), 11–16. https://doi.org/10.1177/8755123308317675	Sight-Singing (C)	3B, 5B
Henry, M. L. (2004). The use of targeted pitch skills for sight-singing instruction in the choral rehearsal. *Journal of Research in Music Education*, *52*(3), 206–217. https://doi.org/10.2307/3345855	Sight-Singing (C)	3B, 4B
Henry, M. (2001). The development of a vocal sight-reading inventory. *Bulletin of the Council for Research in Music Education*, (150), 21–35.	Sight-Singing (C)	1A
Kuehne, J. M. (2007). A survey of sight-singing instructional practices in Florida middle-school choral programs. *Journal of Research in Music Education*, *55*(2), 115–128.	Sight-Singing (C)	1A
McClung, A. C. (2008). Sight-singing scores of high school choristers with extensive training in movable solfège syllables and Curwen hand signs. *Journal of Research in Music Education*, *56*(3), 255–266.	Sight-Singing (C)	3B, 4B

Category 1. Curriculum & Materials Category Continued

Citation	Subcategory	Cross Listing
McClung, A. C. (2001). Sight-singing systems: Current practice and survey of all-state choristers. *Update: Applications of Research in Music Education*, *20*(1), 3–8. https://doi.org/10.1177/875512330102000102	Sight-Singing (C)	
Nichols, B. (2012). The way we do the things we do: a survey of middle-school choral educators' sight-singing attitudes and influences. *Contributions to Music Education*, *39*, 87–100.	Sight-Singing (C)	
Norris, C. E. (2004). A nationwide overview of sight-singing requirements of large-group choral festivals. *Journal of Research in Music Education*, *52*(1), 16–28. https://doi.org/10.2307/3345522	Sight-Singing (C)	6B
Legette, R. M. (2003). Multicultural music education attitudes, values, and practices of public school music teachers. *Journal of Music Teacher Education*, *13*(1), 51–59. https://doi.org/10.1177/10570837030130010107	Descriptive Studies (E)	1D
Manning, A. M. (2014). Vocal mechanism knowledge and voice care among freshman and senior university voice students. *International Journal of Research in Choral Singing*, *5*(1), 60–77.	Descriptive Studies (E)	
Schmidt, C. P., Baker, R., Hayes, B., & Kwan, E. (2006). A descriptive study of public school music programs in Indiana. *Bulletin of the Council for Research in Music Education*, (169), 25–37.	Descriptive Studies (E)	5D, 4A
Strand, K. (2006b). Survey of Indiana music teachers on using composition in the classroom. *Journal of Research in Music Education*, *54*(2), 154–167. https://doi.org/10.1177/002242940605400206	Descriptive Studies (E)	
VanWeelden, K., & Whipple, J. (2014). Music educators' perceptions of preparation and supports available for inclusion. *Journal of Music Teacher Education*, *23*(2), 33–51. https://doi.org/10.1177/1057083713484585	Descriptive Studies (E)	
Wagner, M. J. (1995). Karaoke and music learning. *Update: Applications of Research in Music Education*, *13*(2), 14–19. https://doi.org/10.1177/875512339501300205	Descriptive Studies (E)	

Category 2. Teacher/Conductor Behavior

Citation	Subcategory	Cross Listing
Nápoles, J. (2017). Teacher talk and perceived teacher effectiveness: An exploratory study. *Update: Applications of Research in Music Education*, *35*(3), 5–10. https://doi.org/10.1177/8755123315626228	Verbal Behavior (A)	4E
Napoles, J. (2006). The relationship between type of teacher talk and student attentiveness. *Journal of Music Teacher Education*, *16*(1), 7–19. https://doi.org/10.1177/10570837060160010103	Verbal Behavior (A)	2D, 2B
Watkins, R. C. (1999). A comparison of middle school and high school choral director's verbal academic and social approval/disapproval during rehearsal. *Southeastern Journal of Music Education*. Retrieved from http://www.music.uga.edu/sites/default/files/wp_import/2013/11/SEJoME-V11.pdf	Verbal Behavior (A)	
Brendell, J. K. (1996). Time use, rehearsal activity, and student off-task behavior during the initial minutes of high school choral rehearsals. *Journal of Research in Music Education*, *44*(1), 6–14. https://doi.org/10.2307/3345409	Time Use (B)	2D
Garrett, M. L. (2013). An examination of critical thinking skills in high school choral rehearsals. *Journal of Research in Music Education*, *61*(3), 303–317. https://doi.org/10.1177/0022429413497219	Time Use (B)	
Watkins, R. C. (1996). Nonperformance time use in high school choral rehearsals: A follow-up study. *Update: Applications of Research in Music Education*, *14*(2), 4–8.	Time Use (B)	2C
Yarbrough, C. (2002). Sequencing musical tasks: The teaching artistry of Robert Shaw. *Update: Applications of Research in Music Education*, *21*(1), 30–37.	Time Use (B)	2C
Yarbrough, C., Dunn, D. E., & Baird, S. L. (1996). A longitudinal study of teaching in a choral rehearsal. *Southeastern Journal of Music Education*, *8*, 7–31.	Time Use (B)	2A, 2D
Yarbrough, C., Orman, E. K., & Neill, S. (2007). Time usage by choral directors prior to sight-singing adjudication. *Update: Applications of Research in Music Education*, *25*(2), 27–35.	Time Use (B)	6B
Parker, E. C. (2016). The experience of creating community an intrinsic case study of four midwestern public school choral teachers. *Journal of Research in Music Education*, *64*(2), 220–237. https://doi.org/10.1177/0022429416648292	Teaching Style & Class Environment (C)	5B

Category 2. Teacher/Conductor Behavior Continued

Citation	Subcategory	Cross Listing
Brunkan, M. C. (2013). The effects of watching three types of conductor gestures and performing varied gestures along with the conductor on measures of singers' intonation and tone quality: A pilot study. *International Journal of Research in Choral Singing*, *4*, 37–51.	Teacher Effects on Student Behavior (D)	3D
Daugherty, J. F., & Brunkan, M. C. (2013). Monkey see, monkey do? The effect of nonverbal conductor lip rounding on visual and acoustic measures of singers' lip postures. *Journal of Research in Music Education*, *60*(4), 345–362. https://doi.org/10.1177/0022429412464039	Teacher Effects on Student Behavior (D)	
Dunn, D. E. (1997). Effect of rehearsal hierarchy and reinforcement on attention, achievement, and attitude of selected choirs. *Journal of Research in Music Education*, *45*(4), 547–567. https://doi.org/10.2307/3345422	Teacher Effects on Student Behavior (D)	5B
Fuelberth, R. J. V. (2003). The effect of left hand conducting gesture on inappropriate vocal tension in individual singers. *Bulletin of the Council for Research in Music Education*, (157), 62–70.	Teacher Effects on Student Behavior (D)	
Grady, M. L. (2014). Effects of traditional pattern, lateral-only, and vertical-only conducting gestures on acoustic and perceptual measures of choir sound: An exploratory study. *International Journal of Research in Choral Singing*, *5*(1), 39–59.	Teacher Effects on Student Behavior (D)	5B
Manternach, J. N. (2012a). The effect of nonverbal conductor lip rounding and eyebrow lifting on singers' lip and eyebrow postures: A motion capture study. *International Journal of Research in Choral Singing*, *4*, 36–46.	Teacher Effects on Student Behavior (D)	
Manternach, J. N. (2012b). The effect of varied conductor preparatory gestures on singer upper body movement. *Journal of Music Teacher Education*, *22*(1), 20–34. https://doi.org/10.1177/1057083711414428	Teacher Effects on Student Behavior (D)	
Davis, A. P. (1998). Performance achievement and analysis of teaching during choral rehearsals. *Journal of Research in Music Education*, *46*(4), 496–509. https://doi.org/10.2307/3345346	Miscellaneous Descriptive Studies (E)	2A, 2B, 2D, 3A

Category 3. Teaching Methods/Techniques

Citation	Subcategory	Cross Listing
Ganschow, C. M. (2014). Secondary school choral conductors' self-reported beliefs and behaviors related to fundamental choral elements and rehearsal approaches. *Journal of Music Teacher Education*, *23*(2), 52–63. https://doi.org/10.1177/1057083713485587	Rehearsal Organization (A)	
Broomhead, P. (2009). An individualized problem-solving approach for teaching choral phrase shaping: An experimental study. *Update: Applications of Research in Music Education*, *27*(2), 52–61. https://doi.org/10.1177/8755123308329869	Effects of Specific Techniques (B)	
Broomhead, P. (2006). A study of instructional strategies for teaching expressive performance in the choral rehearsal. *Bulletin of the Council for Research in Music Education*, (167), 7–20.	Effects of Specific Techniques (B)	4B
Broomhead, P., Skidmore, J. B., Eggett, D. L., & Mills, M. M. (2018). The Effects of a Teacher-Directed Preperformance Routine on Expressive Performance Mindset. *Bulletin of the Council for Research in Music Education*, (215), 57–74.	Effects of Specific Techniques (B)	
Freer, P. K. (2009a). Focus on scaffolding language and sequential units during choral instruction. *Update: Applications of Research in Music Education*, *28*(1), 33–40. https://doi.org/10.1177/8755123309344327	Effects of Specific Techniques (B)	4D
Freer, P. K. (2008). Teacher instructional language and student experience in middle school choral rehearsals. *Music Education Research*, *10*(1), 107–124. https://doi.org/10.1080/14613800701871538	Effects of Specific Techniques (B)	
Grady, M. L., & Cook-Cunningham, S. L. (2018). The effects of three physical and vocal warm-up procedures on acoustic and perceptual measures of choral sound: Study replication with younger populations. *Journal of Voice*. https://doi.org/10.1016/j.jvoice.2018.12.009	Effects of Specific Techniques (B)	5B
Manternach, J. N., Clark, C., & Daugherty, J. F. (2017). Effects of a straw phonation protocol on acoustic measures of an SATB chorus singing two contrasting Renaissance works. *Journal of Voice, 31*(4), 514.e5-514.e10. https://doi.org/10.1016/j.jvoice.2016.12.008	Effects of Specific Techniques (B)	
Napoles, J. (2014). Verbal instructions and conducting gestures examining two modes of Communication. *Journal of Music Teacher Education*, *23*(2), 9–20. https://doi.org/10.1177/1057083712474936	Effects of Specific Techniques (B)	
Aspaas, C., McCrea, C. R., Morris, R. J., & Fowler, L. (2004). Select acoustic and perceptual measures of choral formation. *International Journal of Research in Choral Singing*, *2*(1), 11–26.	Singing Formations (C)	2D

Category 3. Teaching Methods/Techniques Continued

Citation	Subcategory	Cross Listing
Daugherty, J. F. (2003). Choir spacing and formation: Choral sound preferences in random, synergistic, and gender-specific chamber choir placements. *International Journal of Research in Choral Singing*, *1*(1), 48–59.	Singing Formations (C)	5B
Daugherty, J. F., Manternach, J. N., & Brunkan, M. C. (2013). Acoustic and perceptual measures of SATB choir performances on two types of portable choral riser units in three singer-spacing conditions. *International Journal of Music Education*, *31*(3), 359–375. https://doi.org/10.1177/0255761411434499	Singing Formations (C)	5B
Ekholm, E. (2000). The effect of singing mode and seating arrangement on choral blend and overall choral sound. *Journal of Research in Music Education*, *48*(2), 123–135. https://doi.org/10.2307/3345571	Singing Formations (C)	
Morris, R. J., Mustafa, A. J., McCrea, C. R., Fowler, L. P., & Aspaas, C. (2007). Acoustic analysis of the interaction of choral arrangements, musical selection, and microphone location. *Journal of Voice, 21*(5), 568–575. https://doi.org/10.1016/j.jvoice.2006.04.006	Singing Formations (C)	
Brunkan, M. C. (2016). Relationships of a Circular Singer Arm Gesture to Acoustical and Perceptual Measures of Singing: A Motion Capture Study. *Update: Applications of Research in Music Education*, *34*(3), 56–62. https://doi.org/10.1177/8755123314567782	Movement (D)	5B

Category 4. Teacher Education

Citation	Subcategory	Cross Listing
Abrahams, F. (2009). Examining the preservice practicum experience of undergraduate music education majors—exploring connections and dispositions through multiple perspectives a critical grounded theory. *Journal of Music Teacher Education*, *19*(1), 80–92. https://doi.org/10.1177/1057083709344044	Comprehensive Studies (A)	4E, 4B
Juchniewicz, J. (2018). An examination of music student teaching practices across institutions accredited by the National Association of Schools of Music. Bulletin of the Council for Research in Music Education, (217), 27–44.	Comprehensive Studies (A)	
Kelly, S. N. (2003). A time-use analysis of student intern verbal and non-verbal teaching behavior. *Contributions to Music Education, 30*(1), 55–68. Retrieved from JSTOR.	Comprehensive Studies (A)	
Pembrook, R. G., Fuelberth, R., & Harden, M. (1999). First impressions: Correlations between initial teaching demonstrations and selected factors. *Southeastern Journal of Music Education*.	Comprehensive Studies (A)	
Prickett, C. A., & Bridges, M. S. (2000). A comparison of the basic song repertoire of vocal/choral and instrumental music education majors. *Journal of Research in Music Education*, *48*(1), 5–9. https://doi.org/10.2307/3345452	Comprehensive Studies (A)	
Rohwer, D., & Henry, W. (2004). University teachers' perceptions of requisite skills and characteristics of effective music teachers. *Journal of Music Teacher Education*, *13*(2), 18–27. https://doi.org/10.1177/10570837040130020104	Comprehensive Studies (A)	
Brunkan, M. C., & Mercado, E. M. (2018). A comparison of laboratory and virtual laryngeal dissection experiences on preservice music educators' knowledge and perceptions. *Journal of Voice*. https://doi.org/10.1016/j.jvoice.2018.06.012	Choral Teaching Techniques (B)	6A
Grimland, F. (2005). characteristics of teacher-directed modeling in high school choral rehearsals. *Update: Applications of Research in Music Education*, *24*(1), 5–14. https://doi.org/10.1177/87551233050240010102	Choral Teaching Techniques (B)	
Guilbault, D. M. (2009). The effects of harmonic accompaniment on the tonal improvisations of students in first through sixth grade. *Journal of Research in Music Education*, *57*(2), 81–91.	Choral Teaching Techniques (B)	3B, 4D
Hedden, D. G., & Johnson, C. (2008). the effect of teaching experience on time and accuracy of assessing young singers' pitch accuracy. *Bulletin of the Council for Research in Music Education*, (178), 63–72.	Error Detection (C)	5B

Category 4. Teacher Education Continued

Citation	Subcategory	Cross Listing
Napoles, J. (2012). The effect of lip synching on musicians' ability to detect errors in a choral score. *Bulletin of the Council for Research in Music Education*, (191), 81–92. https://doi.org/10.5406/bulcouresmusedu.191.0081	Error Detection (C)	5B, 4B
Napoles, J., Babb, S. L., Bowers, J., Hankle, S., & Zrust, A. (2017). The effect of piano playing on preservice teachers' ability to detect errors in a choral score. *Journal of Music Teacher Education*, *26*(2), 39–49. https://doi.org/10.1177/1057083716639724	Error Detection (C)	
Stambaugh, L. A. (2016). Differences in error detection skills by band and choral preservice teachers. *Journal of Music Teacher Education*, *25*(2), 25–36. https://doi.org/10.1177/1057083714558421	Error Detection (C)	
Biddlecombe, T. (2012). Assessing and enhancing feedback of choral conductors through analysis and training. *International Journal of Research in Choral Singing*, *4*, 2–18.	General Teaching Techniques (D)	
Della Pietra, C. J., & Campbell, P. S. (1995). An ethnography of improvisation training in a music methods course. *Journal of Research in Music Education*, *43*(2), 112–126. https://doi.org/10.2307/3345673	General Teaching Techniques (D)	5B
Freer, P. (2017). Problem-based learning and structural redesign in a choral methods course. *Contributions to Music Education*, 42, 53–72. Retrieved from JSTOR.	General Teaching Techniques (D)	4E
McGinnis, E. J. (2018). Developing the emotional intelligence of undergraduate music education majors: An exploratory study using Bradberry and Greaves' (2009) "Emotional Intelligence 2.0." *Journal of Music Teacher Education, 27*(2), 11–22. https://doi.org/10.1177/1057083717723919	General Teaching Techniques (D)	4E
Nápoles, J. (2013). Critical thinking in the choral rehearsal: An initial study of approaches to teacher training. *International Journal of Research in Choral Singing*, *4*, 105–116.	General Teaching Techniques (D)	2B
Napoles, J., & Bowers, J. (2010). Differential effects of instructor feedback vs. self-observation analysis on music education majors' increase of specific reinforcement in choral rehearsals. *Bulletin of the Council for Research in Music Education*, (183), 39–48.	General Teaching Techniques (D)	4E
Running, D. J. (2009). Effects of an interdisciplinary method for training conductors. *Bulletin of the Council for Research in Music Education*, (181), 7–19.	General Teaching Techniques (D)	5B

Category 4. Teacher Education Continued

Citation	Subcategory	Cross Listing
Scott, D. E. (1996). Visual diagnostic skills development and college students' acquisition of basic conducting skills. *Journal of Research in Music Education*, *44*(3), 229–239. https://doi.org/10.2307/3345596	General Teaching Techniques (D)	4C
Strand, K. (2006a). Learning to inquire: Teacher research in undergraduate teacher training. *Journal of Music Teacher Education*, *15*(2), 29–42. https://doi.org/10.1177/10570837060150020105	General Teaching Techniques (D)	
Arnold, J. A. (1995). Effects of competency-based methods of instruction and self-observation on ensemble directors' use of sequential patterns. *Journal of Research in Music Education*, *43*(2), 127–138. https://doi.org/10.2307/3345674	Perception & Self-Reflection (E)	
Bergee, M. J. (2002). Direct and mediated experiences: effects on classroom management self-efficacy. *Journal of Music Teacher Education*, *12*(1), e33–e37. https://doi.org/10.1177/10570837020120010301	Perception & Self-Reflection (E)	4D
Bernhard, H. C. (2013). Music education majors' confidence in teaching improvisation. *Journal of Music Teacher Education*, *22*(2), 65–72. https://doi.org/10.1177/1057083712458593	Perception & Self-Reflection (E)	
Butke, M. A. (2006). Reflection on practice: A study of five choral educators' reflective journeys. *UPDATE: Applications of Research in Music Education*, *25*(1), 57–69.	Perception & Self-Reflection (E)	6C
Butler, A. (2001). Preservice music teachers' conceptions of teaching effectiveness, microteaching experiences, and teaching performance. *Journal of Research in Music Education*, *49*(3), 258–272. https://doi.org/10.2307/3345711	Perception & Self-Reflection (E)	
Conkling, S. W. (2003). Uncovering preservice music teachers' reflective thinking: Making sense of learning to teach. *Bulletin of the Council for Research in Music Education*, (155), 11–23.	Perception & Self-Reflection (E)	4F
Fredrickson, W. E., & Pembrook, R. G. (2002). "When you pinpoint incorrect notes and they still miss them, what do you do then?" (Perceptions of Music Field Experience Students). *Bulletin of the Council for Research in Music Education*, (153/154), 8–11.	Perception & Self-Reflection (E)	5B
Fredrickson, W. E., & Pembrook, R. G. (1999). "I Got to Teach All Day!" (Perceptions of Student Teachers). *Bulletin of the Council for Research in Music Education*, (141), 36–40.	Perception & Self-Reflection (E)	5B

Category 4. Teacher Education

Citation	Subcategory	Cross Listing
Johnson, C., Darrow, A. A., & Eason, B. J. A. (2008). Novice and skilled music teachers' nonverbal behaviors and their relationship to perceived effectiveness and rapport. *Bulletin of the Council for Research in Music Education*, (178), 73–83.	Perception & Self-Reflection (E)	5B
Martin, L. D. (2018). A case study of a noncredentialed, second-career music educator. *Journal of Music Teacher Education, 28*(1), 83–101. https://doi.org/10.1177/1057083718788017	Perception & Self-Reflection (E)	6C
Napoles, J. (2008). Relationships among instructor, peer, and self-evaluations of undergraduate music education majors' micro-teaching experiences. *Journal of Research in Music Education*, *56*(1), 82–91. https://doi.org/10.1177/0022429408323071	Perception & Self-Reflection (E)	
Napoles, J., & MacLeod, R. B. (2016). Influences of teacher delivery, student engagement, and observation focus on preservice teachers' perceptions of teaching effectiveness. *Journal of Music Teacher Education*, *25*(3), 53–64. https://doi.org/10.1177/1057083715580436	Perception & Self-Reflection (E)	2C
Nápoles, J., & Vázquez-Ramos, A. M. (2013). Perceptions of time spent in teacher talk a comparison among self-estimates, peer estimates, and actual time. *Journal of Research in Music Education*, *60*(4), 452–461. https://doi.org/10.1177/0022429412463246	Perception & Self-Reflection (E)	4D, 2B
Palmer, C. M. (2018). Perceptions of cooperating music teachers on service motives, relationships, and mentoring strategies during student teaching. Journal of Music Teacher Education, 28(1), 24–39. https://doi.org/10.1177/1057083717750078	Perception & Self-Reflection (E)	6C
Springer, D. G., & Gooding, L. F. (2013). Preservice music teachers' attitudes toward popular music in the music classroom. *Update: Applications of Research in Music Education*, *32*(1), 25–33. https://doi.org/10.1177/8755123313502349	Perception & Self-Reflection (E)	
Stegman, S. F. (2007). An exploration of reflective dialogue between student teachers in music and their cooperating teachers. *Journal of Research in Music Education*, *55*(1), 65–82. https://doi.org/10.1177/002242940705500106	Perception & Self-Reflection (E)	4F
Stegman, S. F. (2001). Perceptions of student teachers in secondary choral classrooms. *Journal of Music Teacher Education*, *11*(1), 12–20. https://doi.org/10.1177/105708370101100104	Perception & Self-Reflection (E)	4F

Category 4. Teacher Education Continued

Citation	Subcategory	Cross Listing
Teachout, D. J. (1997). Preservice and experienced teachers' opinions of skills and behaviors important to successful music teaching. *Journal of Research in Music Education*, *45*(1), 41–50. https://doi.org/10.2307/3345464	Perception & Self-Reflection (E)	5B
Ward-Steinman, P. M. (2007). Confidence in teaching improvisation according to the k-12 achievement standards: surveys of vocal jazz workshop participants and undergraduates. *Bulletin of the Council for Research in Music Education*, (172), 25–40.	Perception & Self-Reflection (E)	5B
Whipple, J., & VanWeelden, K. (2012). Educational supports for students with special needs: Preservice music educators' perceptions. *Update: Applications of Research in Music Education*, *30*(2), 32–45. https://doi.org/10.1177/8755123312436987	Perception & Self-Reflection (E)	4D
Wine, T. R. (1995). Student Perception of Score Miniaturization as a Pedagogical Tool For Developing Choral Conducting Skills. *Contributions to Music Education*, (22), 49–61. Retrieved from JSTOR.	Perception & Self-Reflection (E)	4B
Worthy, M. D. (2005). The effects of self-evaluation on the timing of teacher and student behaviors in lab rehearsals. *Journal of Music Teacher Education*, *15*(1), 8–14. https://doi.org/10.1177/10570837050150010103	Perception & Self-Reflection (E)	4D
Yoo, H. (2016). A web-based environment for facilitating reflective self assessment of choral conducting students. *Contributions to Music Education*, 41, 113–130. Retrieved from JSTOR.	Perception & Self-Reflection (E)	4D
Dabback, W. (2018). A longitudinal perspective of early career music teachers: Contexts, interactions, and possible selves. *Journal of Music Teacher Education, 27*(2), 52–66. https://doi.org/10.1177/1057083717727268	Preservice Social/Identity (F)	4E
Hamann, D. L., Lineburgh, N., & Paul, S. (1998). Teaching effectiveness and social skill development. *Journal of Research in Music Education*, *46*(1), 87–101. https://doi.org/10.2307/3345762	Preservice Social/Identity (F)	5A
Parker, E. C., & Powell, S. R. (2014). A phenomenological study of music education majors' identity development in methods courses outside their areas of focus. *Bulletin of the Council for Research in Music Education*, (201), 23–41. https://doi.org/10.5406/bulcouresmusedu.201.0023	Preservice Social/Identity (F)	4E
Thompson, L. K., & Campbell, M. R. (2003). Gods, guides and gardeners: Preservice music educators' personal teaching metaphors. *Bulletin of the Council for Research in Music Education*, (158), 43–54.	Preservice Social/Identity (F)	4E

Category 5. Student Characteristics

Citation	Subcategory	Cross Listing
Adderley, C., Kennedy, M., & Berz, W. (2003). "A home away from home": The world of the high school music classroom. *Journal of Research in Music Education*, *51*(3), 190–205. https://doi.org/10.2307/3345373	Social & Personal Characteristics (A)	5D
Demorest, S. M., Kelley, J., & Pfordresher, P. Q. (2017). Singing ability, musical self-concept, and future music participation. *Journal of Research in Music Education*, *64*(4), 405–420. https://doi.org/10.1177/0022429416680096	Social & Personal Characteristics (A)	5D
Gumm, A. (2004). The effect of choral student learning style and motivation for music on perception of music teaching style. *Bulletin of the Council for Research in Music Education*, (159), 11–22.	Social & Personal Characteristics (A)	5B
MacLellan, C. R. (2011). Differences in myers-briggs personality types among high school band, orchestra, and choir members. *Journal of Research in Music Education*, *59*(1), 85–100.	Social & Personal Characteristics (A)	5D
Nichols, B. E. (2014). The musical participation and consumerism of two non-music majors enrolled in a university men's glee club. *Contributions to Music Education*, 40, 131–146. Retrieved from JSTOR.	Social & Personal Characteristics (A)	5B, 5D
Parker, E. C. (2018). A grounded theory of adolescent high school women's choir singers' process of social identity development. *Journal of Research in Music Education, 65*(4), 439–460. https://doi.org/10.1177/0022429417743478	Social & Personal Characteristics (A)	
Parker, E. C. (2014). The process of social identity development in adolescent high school choral singers a grounded theory. *Journal of Research in Music Education*, *62*(1), 18–32. https://doi.org/10.1177/0022429413520009	Social & Personal Characteristics (A)	5D
Torrance, T. A., & Bugos, J. A., (2017). Music ensemble participation: personality traits and music experience. *Update: Applications of Research in Music Education*, *36*(1), 28–36. https://doi.org/10.1177/8755123316675481	Social & Personal Characteristics (A)	5D
Zdzinski, S. F. (2002). Parental involvement, musical achievement, and music attitudes of vocal and instrumental music students. *Contributions to Music Education, 29*(2), 29–45. Retrieved from JSTOR.	Social & Personal Characteristics (A)	5D
Zelenak, M. S. (2015). Measuring the sources of self-efficacy among secondary school music students. *Journal of Research in Music Education*, *62*(4), 389–404. https://doi.org/10.1177/0022429414555018	Social & Personal Characteristics (A)	
Conway, C., & Hodgman, T. M. (2008). College and community choir member experiences in a collaborative intergenerational performance project. *Journal of Research in Music Education*, *56*(3), 220–237.	Perception & Ratings (B)	

Category 5. Student Characteristics Continued

Citation	Subcategory	Cross Listing
Cosenza, G. L. (2002). Medieval music for middle school chorus: A music preference Study. *Update: Applications of Research in Music Education*, *20*(2), 3–7. https://doi.org/10.1177/875512330202000202	Perception & Ratings (B)	
Dakon, J. M., & Major, M. L. (2017). Chorister perceptions of collegiate top-level choral experiences: Replication and extension. *Bulletin of the Council for Research in Music Education*, (212), 27–55.	Perception & Ratings (B)	5A
Darrow, A. A., Johnson, C. M., Miller, A. M., & Williamson, P. (2002). Can students accurately assess themselves? Predictive validity of student self-reports. *Update: Applications of Research in Music Education*, *20*(2), 8–11. https://doi.org/10.1177/875512330202000203	Perception & Ratings (B)	
Daugherty, J. F. (1999). Spacing, formation, and choral sound: preferences and perceptions of auditors and choristers. *Journal of Research in Music Education*, *47*(3), 224–238. https://doi.org/10.2307/3345781	Perception & Ratings (B)	3C
Davis, A. P. (2003). Aesthetic response to choral music: Response comparisons of performer-participants and non-performer respondents. *International Journal of Research in Choral Singing*, *1*(1), 60–64.	Perception & Ratings (B)	
Duke, R. A., Prickett, C. A., & Jellison, J. A. (1998). Empirical description of the pace of music instruction. *Journal of Research in Music Education*, *46*(2), 265–280. https://doi.org/10.2307/3345628	Perception & Ratings (B)	
Ford, J. K. (2003). The preference for strong or weak singer's formant resonance in choral tone quality. *International Journal of Research in Choral Singing*, *1*(1), 29–47.	Perception & Ratings (B)	
Freer, P. K. (2009b). 'I'll sing with my buddies' — Fostering the possible selves of male choral singers. *International Journal of Music Education, 27*(4), 341–355. https://doi.org/10.1177/0255761409345918	Perception & Ratings (B)	4B
Fuelberth, R. J. V. (2004). The effect of various left hand conducting gestures on perceptions of anticipated vocal tension in singers. *International Journal of Research in Choral Singing*, *2*(1), 27–38.	Perception & Ratings (B)	2D
Hamann, D. L., Baker, D. S., McAllister, P. A., & Bauer, W. I. (2000). Factors affecting university music students' perceptions of lesson quality and teaching effectiveness. *Journal of Research in Music Education*, *48*(2), 102–113. https://doi.org/10.2307/3345569	Perception & Ratings (B)	4E

Category 5. Student Characteristics Continued

Citation	Subcategory	Cross Listing
Haston, W. (2013). Perceived use of teacher questioning in secondary music ensembles. *Bulletin of the Council for Research in Music Education*, (195), 77–94. https://doi.org/10.5406/bulcouresmusedu.195.0077	Perception & Ratings (B)	2A, 4D
Henry, M. (2015). Vocal sight-reading assessment: Technological advances, student perceptions, and instructional implications. *Update: Applications of Research in Music Education*, *33*(2), 58–64. https://doi.org/10.1177/8755123314547908	Perception & Ratings (B)	1C, 1D
Killian, J. N., & Basinger, L. (2007). Perception of choral blend among choral, instrumental, and nonmusic majors using the continuous response digital interface. *Journal of Research in Music Education*, *55*(4), 313–325.	Perception & Ratings (B)	4E
Lind, V. R. (1999). Classroom environment and Hispanic enrollment in secondary choral music programs. *Contributions to Music Education, 26*(2), 64–77. Retrieved from JSTOR.	Perception & Ratings (B)	2C, 5D
Major, M. L., & Dakon, J. M. (2016). Singer perceptions of collegiate mid-level choral experiences a descriptive study. *Journal of Research in Music Education*, *64*(1), 108–127. https://doi.org/10.1177/0022429416639232	Perception & Ratings (B)	5A, 5D
Mann, L. M. (2014). Effects of solo and choral singing modes on vibrato rate, extent, and duration exhibited by undergraduate female singers. *International Journal of Research in Choral Singing*, *5*(1), 26–38.	Perception & Ratings (B)	5C
Morrison, S., & Selvey, J. (2014). The effect of conductor expressivity on choral ensemble evaluation. *Bulletin of the Council for Research in Music Education*, (199), 7–18. https://doi.org/10.5406/bulcouresmusedu.199.0007	Perception & Ratings (B)	2E
Napoles, J. (2013). The influences of presentation modes and conducting gestures on the perceptions of expressive choral performance of high school musicians attending a summer choral camp. *International Journal of Music Education, 31*(3), 321–330. https://doi.org/10.1177/0255761411434823	Perception & Ratings (B)	2D
Napoles, J. (2009). The effects of score use on musicians' ratings of choral performances. *Journal of Research in Music Education*, *57*(3), 267–279.	Perception & Ratings (B)	
Nápoles, J., Babb, S., & Willie, K. (2014). The effect of baton use in fast and slow tempi on perceptions of choral conductor and ensemble performance. *International Journal of Research in Choral Singing*, *5*(1), 15–25.	Perception & Ratings (B)	

Category 5. Student Characteristics Continued

Citation	Subcategory	Cross Listing
Nápoles, J., & Silvey, B. A. (2017). Effects of conductor baton use on band and choral musicians' perceptions of conductor expressivity and clarity. *Journal of Research in Music Education*, *64*(4), 474–486. https://doi.org/10.1177/0022429416678216	Perception & Ratings (B)	
Nix, J., Mabry, G., & Mathews-Muttwill, A. (2007). Chorister perceptions of real-time displays of spectra in the choral rehearsal: A feasibility study. *International Journal of Research in Choral Singing*, *3*(1). Retrieved from http://cmed.faculty.ku.edu/230.330/ijrcsnix3.pdf	Perception & Ratings (B)	1D
Paparo, S. A. (2016). Embodying singing in the choral classroom: A somatic approach to teaching and learning. *International Journal of Music Education, 34*(4), 488–498. https://doi.org/10.1177/0255761415569366	Perception & Ratings (B)	3B
Parker, E. C. (2011). Uncovering adolescent choral singers' philosophical beliefs about music-making: A qualitative inquiry. *International Journal of Music Education, 29*(4), 305–317. https://doi.org/10.1177/0255761411421092	Perception & Ratings (B)	
Schmidt, C. P. (1995). Attributions of success, grade level, and gender as factors in choral students' perceptions of teacher feedback. *Journal of Research in Music Education*, *43*(4), 313–329. https://doi.org/10.2307/3345730	Perception & Ratings (B)	2A
Silvey, B. A., & Fisher, R. A. (2015). Effects of conducting plane on band and choral musicians' perceptions of conductor and ensemble expressivity. *Journal of Research in Music Education*, *63*(3), 369–383. https://doi.org/10.1177/0022429415597888	Perception & Ratings (B)	2E
Silvey, P. E. (2005). Learning to perform Benjamin Britten's "Rejoice in the Lamb": The perspectives of three high school choral singers. *Journal of Research in Music Education*, *53*(2), 102–119. https://doi.org/10.2307/3345512	Perception & Ratings (B)	
Skadsem, J. A. (1996). Singers' perceptions of effective and ineffective conductors. *Southeastern Journal of Music Education*.	Perception & Ratings (B)	
Stamer, R. A. (2009). Choral student perceptions of effective motivation strategies. *UPDATE: Applications of Research in Music Education*, *28*(1), 25–32. https://doi.org/10.1177/8755123309344113	Perception & Ratings (B)	6B
Stamer, R. A. (2006). Changes in choral student perceptions of the music contest experience. *UPDATE: Applications of Research in Music Education*, *25*(1), 46–56.	Perception & Ratings (B)	6B

Category 5. Student Characteristics Continued

Citation	Subcategory	Cross Listing
Stamer, R. A. (2004). Choral student perceptions of the music contest experience. *UPDATE: Applications of Research in Music Education*, *22*(2), 5–12.	Perception & Ratings (B)	5A
Sweet, B. (2018). Voice change and singing experiences of adolescent females. *Journal of Research in Music Education, 66*(2), 133–149. https://doi.org/10.1177/0022429418763790	Perception & Ratings (B)	5A
Sweet, B. (2010). A case study: Middle school boys' perceptions of singing and participation in choir. *Update: Applications of Research in Music Education*, *28*(2), 5–12. https://doi.org/10.1177/8755123310361770	Perception & Ratings (B)	
Taylor, O. (1997). Student interpretations of teacher verbal praise in selected seventh- and eighth-grade choral classes. *Journal of Research in Music Education*, *45*(4), 536–546. https://doi.org/10.2307/3345421	Perception & Ratings (B)	2A
VanWeelden, K. (2004). Racially stereotyped music and conductor race: Perceptions of performance. *Bulletin of the Council for Research in Music Education*, (160), 38–48.	Perception & Ratings (B)	2E
VanWeelden, K. (2002). Relationships between perceptions of conducting effectiveness and ensemble performance. *Journal of Research in Music Education*, *50*(2), 165–176. https://doi.org/10.2307/3345820	Perception & Ratings (B)	2E
VanWeelden, K., Heath-Reynolds, J., & Leaman, S. (2017). The effect of a peer mentorship program on perceptions of success in choral ensembles: Pairing students with and without Disabilities. *Update: Applications of Research in Music Education*, *36*(1), 37–43. https://doi.org/10.1177/8755123316675480	Perception & Ratings (B)	
Vanweelden, K., & McGee, I. R. (2007). The influence of music style and conductor race on perceptions of ensemble and conductor performance. *International Journal of Music Education, 25*(1), 7–17. https://doi.org/10.1177/0255761407074886	Perception & Ratings (B)	
Williams, L. R. (2009). Effect of voice-part training and music complexity on focus of attention to melody or harmony. *Contributions to Music Education, 36*(2), 45–57. Retrieved from JSTOR.	Perception & Ratings (B)	
Yarbrough, C., & Henley, P. (1999). The effect of observation focus on evaluations of choral rehearsal excerpts. *Journal of Research in Music Education*, *47*(4), 308–318. https://doi.org/10.2307/3345486	Perception & Ratings (B)	2E
Yarbrough, C., & Madsen, K. (1998). the evaluation of teaching in choral rehearsals. *Journal of Research in Music Education*, *46*(4), 469–481. https://doi.org/10.2307/3345344	Perception & Ratings (B)	4D, 4E

Category 5. Student Characteristics Continued

Citation	Subcategory	Cross Listing
Riegle, A. M., & Gerrity, K. W. (2011). The pitch-matching ability of high school choral students: A justification for continued direct instruction. *Update: Applications of Research in Music Education*, *30*(1), 10–15. https://doi.org/10.1177/8755123311418618	Behavior (C)	
Skadsem, J. A. (1997). Effect of conductor verbalization, dynamic markings, conductor gesture, and choir dynamic level on singers' dynamic responses. *Journal of Research in Music Education*, *45*(4), 509–520. https://doi.org/10.2307/3345419	Behavior (C)	2D
Yarbrough, C., Morrison, S. J., Karrick, B., & Dunn, D. E. (1995). The effect of male falsetto on the pitch-matching accuracy of uncertain boy singers, grades K-8. *Update: Applications of Research in Music Education*, *14*(1), 4–10.	Behavior (C)	
Ayling, B. C., & Johnston, K. E. (2005). Trends of college bound high school choral singers. *Contributions to Music Education, 32*(2), 27–42. Retrieved from JSTOR.	Enrollment (D)	5B
Bowles, C., Dobbs, T., & Jensen, J. (2014). Self-perceived influences on musically active nonmusic majors related to continued engagement. *Update: Applications of Research in Music Education*, *33*(1), 11–20. https://doi.org/10.1177/8755123314540657	Enrollment (D)	5A
Elpus, K. (2015). National estimates of male and female enrolment in American high school choirs, bands and orchestras. *Music Education Research*, *17*(1), 88–102. https://doi.org/10.1080/14613808.2014.972923	Enrollment (D)	
Lucas, M. (2011). Adolescent male attitudes about singing in choir. *Update: Applications of Research in Music Education*, *30*(1), 46–53. https://doi.org/10.1177/8755123311418623	Enrollment (D)	5B
McCrary, J. (2001). "Good" and "real" reasons college-age participants join university gospel and traditional choral ensembles. *Bulletin of the Council for Research in Music Education*, (149), 23–29.	Enrollment (D)	5A, 5B
Sichivitsa, V. O. (2003). College choir members' motivation to persist in music: Application of the Tinto model. *Journal of Research in Music Education*, *51*(4), 330–341. https://doi.org/10.2307/3345659	Enrollment (D)	5A, 5B
Tipps, J. W. (2003). A preliminary study of factors that limited secondary school choral involvement of collegiate choral singers. *International Journal of Research in Choral Singing*, *1*(1), 22–28.	Enrollment (D)	

Category 5. Student Characteristics Continued

Citation	Subcategory	Cross Listing
Walker, L. M., & Hamann, D. L. (1995). Minority recruitment: The relationship between high school students' perceptions about music participation and recruitment strategies. *Bulletin of the Council for Research in Music Education*, (124), 24–38.	Enrollment (D)	5B
Warnock, E. C. (2009). Gender and attraction: Predicting middle school performance ensemble participation. *Contributions to Music Education, 36*(2), 59–78. Retrieved from JSTOR.	Enrollment (D)	

Category 6. Miscellaneous Category

Citation	Subcategory	Cross Listing
Baird, B. J., Mokhtari, T. E., Sung, C. K., & Erickson-DiRenzo, E. (2018). A preliminary study of vocal health among collegiate a cappella singers. *Journal of Voice*. https://doi.org/10.1016/j.jvoice.2018.10.003	Vocal Health (A)	
Baker, V. D., & Cohen, N. (2017). University vocal training and vocal health of music educators and music therapists. *Update: Applications of Research in Music Education*, *35*(3), 46–54. https://doi.org/10.1177/8755123316638517	Vocal Health (A)	
Brown, E. P. (2017). Behavioral and environmental analysis of self-reported dysphonic and nondysphonic high school music teachers. *Journal of Music Teacher Education*, *27*(1), 36–47. https://doi.org/10.1177/1057083717697278	Vocal Health (A)	
Brunkan, M. C. (2018). Preservice music teacher voice use, vocal health, and voice function before and during student teaching. *Journal of Music Teacher Education, 27*(3), 80–93. https://doi.org/10.1177/1057083717741216	Vocal Health (A)	
Daugherty, J. F., Manternach, J. N., & Price, K. K. (2011). Student voice use and vocal health during an all-state chorus event. *Journal of Research in Music Education*, *58*(4), 346–367.	Vocal Health (A)	5B
Doherty, M. L., & van Mersbergen, M. (2017). Personal and professional characteristics of music educators: One size does not fit all. *Journal of Voice, 31*(1), 128.e7-128.e13. https://doi.org/10.1016/j.jvoice.2015.12.008	Vocal Health (A)	
Hackworth, R. S. (2013). Prevalence of vocal problems: Speech-language pathologists' evaluation of music and non-music teacher recordings. *International Journal of Music Education, 31*(1), 26–34. https://doi.org/10.1177/0255761411431398	Vocal Health (A)	
Hackworth, R. S. (2010). The effect of teaching experience and specialty (vocal or instrumental) on vocal health ratings of music teachers. *Update: Applications of Research in Music Education*, *28*(2), 13–19. https://doi.org/10.1177/8755123310361766	Vocal Health (A)	
Schwartz, S. (2012). Predictors of choral directors' voice handicap. *Contributions to Music Education*, 39, 117–131. Retrieved from JSTOR.	Vocal Health (A)	
Schwartz, S. M. (2009). Voice range profiles of middle school and high school choral directors. *Journal of Research in Music Education*, *56*(4), 293–309.	Vocal Health (A)	
Watts, R. C. (2016). The prevalence of voice problems in a sample of collegiate a cappella singers. *Journal of Speech Pathology & Therapy, 1*(1). https://doi.org/10.4172/2472-5005.1000105	Vocal Health (A)	5B

Category 6. Miscellaneous Category Continued

Citation	Subcategory	Cross Listing
Latimer, M. E. (2007). Adjudicator reliability: A comparison of the use of authentic state festival choir and global score audition forms. *Contributions to Music Education*, *34*, 67–82.	Contest & Festival (B)	
Norris, C. E., & Borst, J. D. (2007). An examination of the reliabilities of two choral festival adjudication forms. *Journal of Research in Music Education*, *55*(3), 237–251.	Contest & Festival (B)	1A
Riggs, A. L. (2011). The effect of choral director succession on adjudicated concert and sight-reading ratings. *Journal of Music Teacher Education*, *21*(1), 39–50. https://doi.org/10.1177/1057083710393109	Contest & Festival (B)	
Baker, V. D. (2012). Profile of an effective urban music educator. *Update: Applications of Research in Music Education*, *31*(1), 44–54. https://doi.org/10.1177/8755123312458293	Other Studies (C)	
Burrack, F. W., Payne, P., Bazan, D. E., & Hellman, D. S. (2014). The impact of budget cutbacks on music teaching positions and district funding in three midwestern states. *Update: Applications of Research in Music Education*, *33*(1), 36–41. https://doi.org/10.1177/8755123314521039	Other Studies (C)	
Gordon, D. (2000). Sources of stress for the public school music teacher: Four case studies. *Contributions to Music Education, 27*(1), 27–40. Retrieved from JSTOR.	Other Studies (C)	
Cook-Cunningham, S. L., Grady, & M. L., Nelson, H. (2012). Hearing dose and perceptions of hearing and singing effort among university choir singers in varied rehearsal and performance settings. *International Journal of Research in Choral Singing*, *4*, 19–35.	Other Studies (C)	5B
Major, M. L. (2017). Building identity in collegiate midlevel choral ensembles: The director's perspective. *Journal of Research in Music Education*, *64*(4), 435–453. https://doi.org/10.1177/0022429416672891	Other Studies (C)	2E
Walker, L. B., & Young, S. (2003). Perceptions about gospel choir in the college and university music curriculum: A preliminary investigation. *Contributions to Music Education*, *30*(1), 85–93.	Other Studies (B)	1E

APPENDIX C: CHAPTER III DUKE & SIMMONS' (2006) 19 ELEMENTS

Goals & Expectations

1. The repertoire assigned students is well within their technical capabilities; no student is struggling with the notes of the piece.
2. Teachers have a clear auditory image of the piece that guides their judgments about the music.
3. The teacher demands a consistent standard of sound quality from their students.
4. The teachers select lesson targets (i.e. proximal performance goals) that are technically or musically important.
5. Lesson targets are positioned at a level of difficulty that is close enough to the student's current skill level that the targets are achievable in the short term and change is audible to the student in the moment.
6. The teachers clearly remember students' work in past lessons and frequently draw comparisons between present and past, pointing out both positive and negative differences.

Effecting Change

7. Pieces are performed from beginning to end; in this sense, the lessons are like performances, with instantaneous transitions into performance character; nearly all playing is judged by a high standard, "as if we are performing."
8. In general, the course of the music directs the lesson; errors in student performance elicit stops.
9. The teachers are tenacious in working to accomplish lesson targets, having students repeat target passages until performance is accurate (i.e., consistent with the target goal).
10. Any flaws in fundamental technique are immediately addressed; no performance trials with incorrect technique are allowed to continue.
11. Lessons proceed at an intense, rapid pace.
12. The pace of the lessons is interrupted from time to time with what seem to be "intuitively timed" breaks, during which the teachers give an extended demonstration or tell a story.
13. The teachers permit students to make interpretive choices in the performance of repertoire, but only among a limited range of options that are circumscribed by the teacher; students are permitted no choices regarding technique.

Conveying Information

14. Teachers make very fine discriminations about student performances' these are consistently articulated to the student, so that the student learns to make the same discriminations independently.
15. Performance technique is described in terms of the effect that physical motion creates in the sound produced.
16. Technical feedback is given in terms of creating an interpretive effect.
17. Negative feedback is clear, pointed, frequent, and directed at very specific aspects of student's performances, especially the musical effects created.
18. There are infrequent, intermittent, unexpected instance of positive feedback, but these are most often of high magnitude and extended duration.
19. The teachers play examples from the students' repertoire to demonstrate important points; the teachers' modeling is exquisite in every respect.

APPENDIX D: CHAPTER IV CONSENT AND ASSENT

IRB USE ONLY
Study Number: 2018-05-0010
Approval Date: 06/05/2018
Expires: 06/04/2019
Name of Funding Agency (if applicable):

Assent for Participation in Research

Title: Effects of verbal corrections on singers' perceptions and performance

Introduction
You have been asked to be in a research study about how teachers give directions and feedback. After reading about this study, your guardian said that you could be in it if you want to. We want to know how you felt about learning and singing a folk song and how you felt about your teacher.

What am I going to be asked to do?
If you agree to be in this study, you will be asked about past music classes or lessons you took, and if you like singing. Then, you will learn a folk song in a short lesson with a teacher. After you get done you will be asked how you felt about the lesson, singing, and the teacher. You won't have to sing in front of anyone except the teacher. This lesson will take no more than 30 minutes. There will be 49 ~~of~~ other people in this study.

We will need to review what the teacher says during the lesson therefore, we need to record the lesson in some way. You can choose whether the lesson is audio or video recorded. If you allow us to video record the lesson, the camera will only show the teacher.

What are the risks involved in this study?
Nothing bad will happen; you will simply learn to sing a song.

Do I have to participate?
No, you do not have to be in the study. You should only be in the study if you want to. If you decide you want to be in the study now, you can still change your mind later. No one will be upset.

If you would like to be in our study, fill out the information sheet and sign this paper. You will get a copy of this paper so you can look at it later.

Will I get anything if I participate?
No, but you will be helping us understand how you feel about singing and learning.

Who will know about my participation in this research study?
The only people that will know whether you choose to participate will be the teacher, her professor (who you won't meet), and your guardian. The recording will only be seen or heard by the teacher and her professor when they are reviewing the lesson.

Your personal opinions will be kept private, but will be part of a big group of people's opinions about singing, the lesson, and the teacher.

If I have questions, who do I ask?
Before, during, or after your lesson, you can talk to the teacher, Katrina Cox. You can also send her an email at KatiCox@utexas.edu or call (512) 471-7764.

Signature
If you sign your name on this page it means that you read this form and agree to be in the study. If you have any questions before, after or during the study, ask the person in charge. If you decide to quit the study, all you have to do is tell the person in charge.

_____ I allow my lesson to be **video** recorded. (Your voice only, and teacher's voice and video of teacher.)

_____ I allow my lesson to be **audio** recorded. (Your voice and the teacher's voice only. No video.)

_____ _____
Signature of Participant Date

_____ _____
Signature of Principal Investigator Date

IRB USE ONLY
Study Number: 2018-05-0010
Approval Date: 06/05/2018
Expires: 06/04/2019
Name of Funding Agency (if applicable):

Parental Permission for Children Participation in Research

Title: Effects of verbal corrections on singers' perceptions and performance

Introduction
This form is meant to give you information about a study we are doing about children's opinions of singing and learning. The person doing the research will tell you about the study to you and answer all your questions. Read the information below and ask any questions you might have before deciding if you will allow your child to take part in this study. If you decide to let your child be involved, this form will be used to record your permission.

Purpose of the Study
If you agree, your child's participation and opinions will help us learn about the way teachers can talk about singing. These are the questions we are trying to answer:

1. When people get feedback, do they learn songs faster than when they only receive directions?
2. When people get feedback, do they enjoy singing just as much as when they only receive directions?
3. Do children have different opinions about getting feedback and singing than young adults?

What is my child going to be asked to do?
If you allow your child to participate in this study, they will be asked to:

- Complete a short survey about prior musical experiences and opinions of singing.
- Learn and independently sing a folk song.
- Complete an 11-question opinion survey about the lesson experience.

Your child will meet individually with the researcher to learn a song. The lesson will last as long as it takes for your child to learn the short song, which will take no more than 20 minutes. There will be 50 participants in this study.

With your consent, your child's lesson will be audio or video recorded. If you allow video recording, the camera will focus only on the teacher. Your child will never be visually recorded.

What are the risks involved in this study?
There are no foreseeable risks greater than those of everyday life to participating in this study.

What are the possible benefits of this study?
Your child will receive no direct benefit from participating in this study; however, by participating, you will add to our current understanding of how teacher talk affects singers' performances and their opinions of a learning experience.

Does my child have to participate?
No, your child's participation in this study is voluntary. Your child may choose not to participate or to withdraw from participation at any time. Withdrawal or refusing to participate will not affect your child's relationship with the music teacher, The University of Texas Elementary School, or The University of Texas at Austin in any way. You can agree to allow your child to be in the study now and change your mind later without any penalty.

This research study will take place during your child's regularly scheduled music classes; however, your child may remain in the regular music classroom if you do not want your child to participate.

What if my child does not want to participate?
In addition to your permission, your child must agree to participate in the study. If you child does not want to participate they will not be included in the study and there will be no penalty. If your child initially agrees to be in the study they can still change their mind later without any penalty.

Will there be any compensation?
Neither you nor your child will receive any type of payment for participating in this study.

How will your child's privacy and confidentiality be protected if s/he participates in this research study?
Your child's privacy and the confidentiality of all data will be protected by removing all identifying information from your child's data. Your child's opinions and data will be grouped together with other participants' data in any presentations or papers we publish.

If it is necessary for the Institutional Review Board to review the study records, information that can be linked to your child will be protected as much as the law allows. Your child's data will not be released without your consent unless required by law or a court order. The data resulting from your child's participation may be made available to other researchers in the future for research purposes not discussed in this consent form. In these cases, the data will not have any identifying information that could be connected to your child, or with your child's participation in any study.

If you choose to let your child participate in this study, your child will be audio or video recorded. Any audio or video recordings will be stored securely, and only the two researchers will have access to the recordings. Recordings will never be made public at any time. Recordings will be kept for 2 years and then erased.

Whom to contact with questions about the study?
Before, during, or after your participation you can contact the researcher, Katrina Cox, at (618) 214-2345 or send an email to katicox@utexas.edu for any questions or if you feel that you have been harmed. This study has been reviewed and approved by The University Institutional Review Board; the study number is 2018-05-0010**.**

Whom to contact with questions concerning your rights as a research participant?
For questions about your rights or any dissatisfaction with any part of this study, you can contact, anonymously if you wish, the Institutional Review Board by phone at (512) 471-8871 or email at orsc@uts.cc.utexas.edu.

Signature
You are making a decision about allowing your child to participate in this study. Your signature below states that you have read the information above and have decided to allow your child to participate in the study. If you change your mind later, you may take away permission for your child to participate. You will be given a copy of this document.

_____ I give consent for my child's lesson to be **video** recorded. (Only teacher is seen.)

_____ I give consent for my child's lesson to be **audio** recorded.

_____
Printed Name of Child

_____ _____
Signature of Parent(s) or Legal Guardian Date

_____ _____
Signature of Investigator Date

Permiso de los padres para la participación de los niños en la investigación

Título: Efectos de las correcciones verbales en las percepciones y el rendimiento de los cantantes.

Introduccion:
Este formulario está destinado a brindarle información sobre un estudio que estamos haciendo sobre las opiniones de los niños sobre el canto y el aprendizaje. La persona que realiza la investigación le informará sobre el estudio y responderá todas sus preguntas. Lea la información a continuación y formule cualquier pregunta que tenga antes de decidir si permitirá que su hijo participe en este estudio. Si decide dejar que su hijo participe, este formulario se utilizará para registrar su permiso.

Propósito de el estudio:
Si está de acuerdo, la participación y opiniones de su hijo nos ayudarán a aprender sobre la manera en que los maestros pueden hablar sobre el canto. Estas son las preguntas que intentamos responder:
1 - Cuando las personas obtienen una reacción, ¿aprenden canciones más rápido que cuando solo reciben instrucciones?

2 - Cuando las personas reciben comentarios, ¿disfrutan cantando tanto como cuando solo reciben instrucciones?

3 - ¿Los niños tienen opiniones diferentes sobre cómo obtener retroalimentación y cantar que los adultos jóvenes?

¿Qué se le pedirá a mi hijo que haga?
Si permite que su hijo participe en este estudio, se le pedirá que:

- Complete una breve encuesta sobre experiencias musicales previas y opiniones de canto.
- Aprende y canta de manera independiente una canción popular.
- Complete una encuesta de opinión de 11 preguntas sobre la experiencia de la lección.

Su hijo se reunirá individualmente con el investigador para aprender una canción. La lección durará tanto como le tome a su hijo aprender la canción corta, que no tomará más de 30 minutos. Habrá 50 participantes en este estudio.

Con su consentimiento, la lección de su hijo será grabada en audio o video. Si permite la grabación de video, la cámara se enfocará solo en el maestro. Su hijo nunca se grabará visualmente.
Cuales son los riesgos involucrados en este estudio?
No hay riesgos previsibles mayores que los de la vida cotidiana para participar en este estudio.

¿Cuáles son los posibles beneficios de este estudio?
Su hijo no recibirá ningún beneficio directo al participar en este estudio; sin embargo, al participar, agrega a nuestra comprensión actual de cómo la charla del docente afecta el desempeño de los cantantes y sus opiniones sobre una experiencia de aprendizaje.

¿Mi hijo tiene que participar?
No, la participación de su hijo en este estudio es voluntaria. Su hijo puede elegir no participar o retirarse de la participación en cualquier momento. Retirar o rehusarse a participar no afectará de ninguna manera la relación de su hijo con la maestra de música, la Escuela Primaria de la Universidad de Texas o la Universidad de Texas en Austin. Puede aceptar permitir que su hijo esté en el estudio ahora y cambiar de opinión más adelante sin ninguna penalización.

Este estudio de investigación se llevará a cabo durante las clases de música programadas regularmente para su hijo; sin embargo, su hijo puede permanecer en el aula de música regular si no desea que su hijo participe.

¿Qué pasa si mi hijo no quiere participar?
Además de su permiso, su hijo debe aceptar participar en el estudio. Si su hijo no quiere participar, no se incluirán en el estudio y no habrá penalización. Si su hijo acepta inicialmente participar en el estudio, puede cambiar de opinión más adelante sin ninguna penalización.

¿Habrá compensación?
Ni usted ni su hijo recibirán ningún tipo de pago por participar en este estudio.

¿Cómo se protegerá la privacidad y confidencialidad de su hijo si él / ella participa en este estudio de investigación?
La privacidad de su hijo y la confidencialidad de todos los datos estarán protegidos al eliminar toda la información de identificación de los datos de su hijo. Las opiniones y datos de su hijo se agruparán con los datos de otros participantes en cualquier presentación o documento que publiquemos.

Si es necesario que la Junta de Revisión Institucional revise los registros del estudio, la información que pueda vincularse con su hijo estará protegida tanto como lo permita la ley. Los datos de su hijo no se divulgarán sin su consentimiento a menos que lo exija la ley o una orden judicial. Los datos resultantes de la participación de su hijo pueden ponerse a disposición de otros investigadores en el futuro con fines de investigación no mencionados en este formulario de consentimiento. En estos casos, los datos no tendrán ninguna información de identificación que pueda estar conectada a su hijo, o con la participación de su hijo en cualquier estudio.

Si decide permitir que su hijo participe en este estudio, su hijo será grabado en audio o video. Cualquier grabación de audio o video se almacenará de forma segura, y solo los dos investigadores tendrán acceso a las grabaciones. Las grabaciones nunca se harán públicas en ningún momento. Las grabaciones se guardarán durante 2 años y luego se borrarán.

¿A quién contactar con preguntas sobre el estudio?
Antes, durante o después de su participación, puede comunicarse con la investigadora, Katrina Cox, al (618) 214-2345 o enviar un correo electrónico a katicox@utexas.edu si tiene alguna pregunta o si cree que ha sido perjudicado. Este estudio ha sido revisado y aprobado por la Junta de Revisión Institucional de la Universidad y el número de estudio es 2018-05-0010.

¿A quién contactar si tiene preguntas sobre sus derechos como participante en la investigación?
Para preguntas sobre sus derechos o cualquier insatisfacción con cualquier parte de este estudio, puede comunicarse, anónimamente si lo desea, con la Junta de Revisión Institucional por teléfono al (512) 471-8871 o por correo electrónico a orsc@uts.cc.utexas.edu.

Firma
Está tomando una decisión sobre permitir que su hijo participe en este estudio. Su firma a continuación indica que ha leído la información anterior y ha decidido permitir que su hijo participe en el estudio. Si cambia de opinión más adelante, puede retirar el permiso para que su hijo participe. Se te entregará una copia de este documento

——— Doy mi consentimiento para que la lección de mi hijo sea grabada en video. (Solo se ve al maestro)

——— Doy mi consentimiento para que la lección de mi hijo sea grabada en audio

_____
Nombre de el niño

_____
Firma del padre (s) o tutor legal Fecha _____

_____
Firma del investigador Fecha _____

IRB USE ONLY
Study Number: 2018-05-0010
Approval Date: 06/05/2018
Expires: 06/04/2019
Name of Funding Agency (if applicable):

Consent for Participation in Research for University Students

Title: Effects of verbal corrections on singers' perceptions and performance

Introduction
The purpose of this form is to provide you information that may affect your decision about whether to participate in this research study. The person performing the research will answer any of your questions. Read the information below and ask any questions you might have before deciding whether or not to participate. If you decide to be involved in this study, this form will be used to record your consent.

Purpose of the Study
You have been asked to participate in a research study that examines the effects of teacher verbalizations on singers' perceptions and performance.

What will you be asked to do?
If you agree to participate in this study, you will be asked to:

- Complete a short questionnaire about prior musical experiences and perceptions of singing.
- Learn and independently sing a folk song.
- Complete an 11-question perception survey about the experience.

This study will take place during an individually scheduled appointment in a classroom at the Butler School of Music. This study will include a total of 50 participants. You will be audio or video recorded based on your consent. The IRB may audit study records at any time.

What are the risks involved in this study?
Participation in this study involves minimal risk and is no greater than that of everyday life.

What are the possible benefits of this study?
You will receive no direct benefit from participating in this study; however, by participating, you will be contributing to our current understanding of the way teacher verbalizations affect singers' performance and their perceptions of a learning experience.

Do you have to participate?
No, your participation is voluntary. You may decide not to participate at all or, if you start the study, you may withdraw at any time. Withdrawal or refusing to participate will not affect your grades or your relationship with The University of Texas at Austin in any way.

If you agree to participate, please date, print and sign your name at the end of this form and return it to the researcher at your earliest convenience. You will receive a copy of this form.

Will there be any compensation?
You will not receive any type of payment for participating in this study.

How will your privacy and confidentiality be protected if you participate in this research study?
Your privacy and the confidentiality of your data will be protected by dissociating all identifying information from ~~in~~ any published documents or presentations that may result from this study. All data will be described in terms of group means in any published documents or presentations that may result from this study.

If it is for the Institutional Review Board to review the study records, information that can be linked to you will be protected to the extent permitted by law. Your research records will not be released without your consent unless required by law or a court order. The data resulting from your participation may be made available to other researchers in the future for research purposes not detailed within this consent form. In these cases, the data will contain no identifying information that could be associated with you or with your participation in any study.

If you choose to participate in this study, you will be audio or video recorded. Any audio or video recordings will be stored securely and only the researchers will have access to the recordings. Recordings will never be made public at any time. Recordings will be kept for 2 years and then erased.

Whom to contact with questions about the study?
Prior, during, or after your participation you can contact the researcher, Katrina Cox, at (618) 214-2345 or send an email to katicox@utexas.edu for any questions or if you feel that you have been harmed.

This study has been reviewed and approved by The University Institutional Review Board and the study number is 2018-05-0010**.**

Whom to contact with questions concerning your rights as a research participant?
For questions about your rights or any dissatisfaction with any part of this study, you can contact, anonymously if you wish, the Institutional Review Board by phone at (512) 471-8871 or email at orsc@uts.cc.utexas.edu.

Participation
If you agree to participate, please mark whether you allow audio or video recording, print your name and today's date, provide your signature at the end of this form, and return it to the researcher at your earliest convenience. You will receive a copy of this form.

Signature
You have been informed about this study's purpose, procedures, possible benefits and risks, and you have received a copy of this form. You have been given the opportunity to ask questions before you sign, and you have been told that you can ask other questions at any time. You voluntarily agree to participate in this study. By signing this form, you are not waiving any of your legal rights.

_____ I give consent for my lesson to be **video** recorded.

_____ I give consent for my lesson to be **audio** recorded.

_____
Printed Name

_____ _____
Signature Date

As a representative of this study, I have explained the purpose, procedures, benefits, and the risks involved in this research study.

_____
Print Name of Person obtaining consent

_____ _____
Signature of Person obtaining consent Date

APPENDIX E: CHAPTER IV PRE-STUDY QUESTIONNAIRE

Pre-Study Questionnaire
(please return with consent form)

Name: _____ Year/Grade: _____

Did you participate in elementary school general music classes? Y N
Do you sing when you are alone? Y N
Do you enjoy singing? Y N

Instruments and number of years played:

_____
_____

Years in private lessons (list specific kind; for example music, arts, sports):

_____
_____
_____

Years in an organized ensemble (type):

_____
_____
_____

FOR RESEARCHER USE ONLY-PLEASE DO NOT WRITE BELOW DOTTED LINE

-

Participant ID: _____

Condition: _____

Date/Time: _____

Length of Lesson: _____

APPENDIX F: CHAPTER IV PITCH MATCHING PROTOCOL & SONG

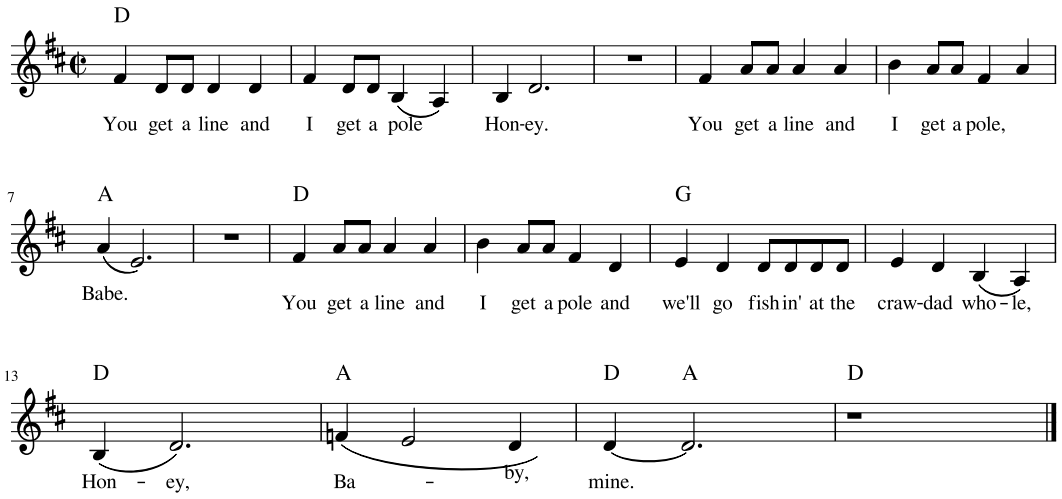
Pitch Matching Protocol

In a variety of ranges if needed:

1. Descending Siren (e.g., D5 to A3)
2. Fluctuating 3rd (e.g., E4, C4, E4, C4, E4)
3. Sing the "NBC" bell theme (i.e., C4, A4, F4)

Song

Crawdad Song



APPENDIX G: CHAPTER IV PERCEPTION SURVEY

Participant ID: _____

Perception Survey

Please READ CAREFULLY and place an X in the appropriate box to indicate your response.

	Strongly Disagree	Disagree	Agree	Strongly Agree
I enjoyed learning to sing the melody today.	☐	☐	☐	☐
I found the melody *difficult* to learn.	☐	☐	☐	☐
I would like to continue learning the song.	☐	☐	☐	☐
This lesson was a *negative* experience.	☐	☐	☐	☐
Singing this melody was easy.	☐	☐	☐	☐
I got bored singing today.	☐	☐	☐	☐
I now feel confident about singing the song I learned today.	☐	☐	☐	☐
The teacher was helpful.	☐	☐	☐	☐
I was *frustrated* during the lesson.	☐	☐	☐	☐
Singing is fun.	☐	☐	☐	☐
The teacher was encouraging and positive.	☐	☐	☐	☐

Glossary

Critical Directive	A verbalization, qualitative in nature (often inferring dissatisfaction with past performance), demanding an action to be performed (e.g., "Let's go back and sing that F# in tune.")
Directive	A verbalization demanding an action to be performed (e.g., "sing")
Feedback	any stimulus that occurs concurrent with or subsequent to human behavior (Duke, 2015); "information provided by an agent regarding aspects of one's performance or understanding" (Hattie & Timperley, 2007, p. 81)
General Directive	A verbalization describing an action that is demanded to be performed (e.g., "Add altos at measure 4.")
Negative Feedback	A paired response to behavior that is incongruent with expectations; a disapproving verbalization
Non-Specific Feedback	A qualitative verbalization that is not explicitly paired with a behavior (e.g., "good," or "that was rough.")
Positive Feedback	A paired response to behavior that is congruent with expectations; an approving verbalization
Praise	To commend worth or status; to express approval or admiration, often with emotion (Brophy, 1981) (e.g., "You always sound great.")
Rehearsal Frame	A framework in which a target is identified; success is achieved through limitation, decontextualization, and/or remediation; and the material is then re-contextualized (Duke, 1994)
Specific Feedback	To pair and identify, reference, or describe a behavior with a qualitative verbalization (e.g., "The F# was too low," or "That note was perfectly in tune.")

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